3dtotal.com

# 3dcreative

Issue 061 September 2010

Look for this button inside

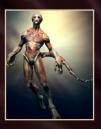
DOWNLOAD RESOURCES

- Free Environment Lighting Artist Scene & Textures
- Free Rigging Scenes
- Free Mudbox Base Mesh
- Free Mudbox Videos

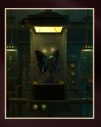
Cover Image by Rebeca Puebla



**Interview**
Olivier Vernay-Kim



**The Gallery**
Arik Newman, Bruno Maremonti, Jonas Skoog & more!



**Project Overview**
"Incubator"
by Indunil Priyanke Ranawake

**Digital Art Masters v5 Promotion**
Free Chapter by Rebeca Puebla

# 5 YEARS ANNIVERSARY ISSUE

SEPTEMBER 2005 - SEPTEMBER 2010







## Facial Rigging & Scripting

**Luis San Juan Pallares**, **Richard Kazuo** & **Danilo Pinheiro** this month conclude our **Introduction to Rigging** tutorial series in 3dsmax & Maya.

## Creating A Female Vampire Character in Mudbox

**Wayne Robson** continues his **Mudbox Female Character Creation** tutorial series this time creating a Vampire character.

## Indoor Environment Lighting: Artificial Light

Setting the mood **Viktor Fretyán**, **Jamie Cardoso**, **Luciano Iurino** and **Fredi Voss** bring us the next chapter of this lighting tutorial series.




# Editorial

Sometimes things have to change, the warm weather is slowly disappearing and some of you may be heading back from holiday or back to school or university. Sadly we can't live in an eternal holiday but you can take comfort in the fact the September issue of 3DCreative is out and it is a cracker! Also this month's issue heralds the 5th birthday of 3DCreative and our desire to create content that is enjoyable to our readers is as strong as ever. If there is anything you would like to see in the magazine or if you would just like to wish us a happy birthday get in touch with me at simon@3DTotal.com.

A lot of you may have been enjoying spending time outside enjoying the countryside over the last few weeks. Well that doesn't need to finish just yet as we have with an interview with the fantastic environment artist Olivier Vernay- Kim. Olivier works for Blur studios creating epic scenes for game trailers and has worked in the games industry for some time now and kindly shares his experiences with us.

We will step inside now as we continue our interior lighting tutorial series. This month our artists calm things down a little and show us how to create low level romantic lighting, using just a few light sources. This is the case with all of the artists this month apart from Viktor Fretyán who has jumped forward a month and shown us how to create the lighting from a TV screen. There is no need to worry though, next month Viktor will be showing us how he would create romantic lighting whilst the remaining artists Jamie Cardoso, Luciano Iurino and Fredi Voss talk us through simulating light from a TV.

This month's cover image comes from the superb Rebeca Puebla. 3DTotal have recently released the fifth volume of the fantastic Digital Art Masters series and to whet your appetite have included a free chapter in this issue of 3DCreative. In the free chapter Rebeca tells us how she created the amazing image on the cover. If you like this, you will love Digital Art Masters Volume 5.

Wayne Robson's master class in Mudbox Female Character Creation continues this month with a Vampire. Wayne has really treated us this time with epic video's detailing techniques and processes which are free to download with this issue.





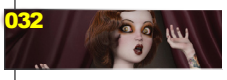
## Contents
What's in this month?




## Olivier Vernay-Kim
3D Character Artist



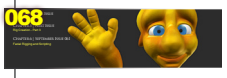

## The Gallery
10 of the Best 3D Artworks




## The Butchers Bride
Digital Art Masters Volume 5 – Promotion




## Mudbox Female
Character Creation Chapter 5: Vampire




## Introduction to Rigging
Chapter 6: Scripting




## "Incubator"
Project Overview by Indunil Priyanke Ranawake




## Indoor Lighting
Series for 3ds Max MR & V-Ray, Maya & Cinema 4D




## About us
3DTotal.com Ltd Information & Contacts



**Editor**
Simon Morse

**Lead Designer**
Chris Perrins

**Layout**
Layla Khani
Matt Lewis

**Marketing**
Jo Hargreaves

**Content**
Simon Morse
Tom Greenway
Richard Tilbury
Chris Perrins

**Proofing**
Jo Hargreaves


## Free Stuff!

Wherever you see this symbol, click it to download resources, extras & even movies!




For all of those that have been enjoying our Rigging tutorials we say a sad good bye to Richard Kazuo, Danilo Pinheiro and Luis San Juan Pallares. I think that you will agree that they have treated us to a wealth of valuable knowledge, but next month we move on to something a little less subtle and technical, ZBrush Monsters!

This issue is brimming with further excellent content with an amazing gallery featuring Hans Kristian Andersen, Carlos Ortega and Tarik Ali and a great making of from Indunil Priyanke Ranawake.

Have Fun!




# Get the most out of your Magazine!

**If you're having problems viewing the double-page spreads that we feature in this magazine, follow this handy little guide on how to set up your PDF reader!**










## Setting up your PDF reader

**For optimum viewing of the magazine, it is recommended that you have the latest Acrobat Reader installed. You can download it for free, here: DOWNLOAD!**

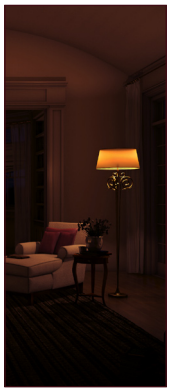
**To view the many double-page spreads featured in 3DCreative magazine, you can set the reader to display 'two-up', which will show double-page spreads as one large landscape image:**

**1. Open the magazine in Reader;**
**2. Go to the View menu, then Page Display;**
**3. Select Two-up Continuous, making sure that Show Cover Page is also selected.**
**That's it!**

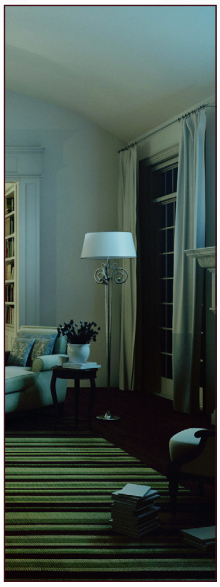
# CONTRIBUTING ARTISTS

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in 3DCreative magazine, please contact: simon@3dtotal.com

## ENVIRONMENT LIGHTING INDOOR SCENE



Chapter 2 of our new Environment Indoor Lighting tutorial series with a great lineup of talented artists: **Jamie cardoso** (**3ds Max + MR**), **Viktor Fretyán** (**3ds Max + Vray**), **Luciano Iurino** (**Maya**) and **Fredi Voss** (**Cinema 4D**).



## VIKTOR FRETYAN



Viktor Fretyan is an architect working on his diploma project whilst working as a freelancer. Viktor is doing mostly architectural renders and has never really tried out at any other fields of 3d yet. Viktor also has a passion for movies and maybe at some point will try working on VFX.

http://radicjoe.cgsociety.org/gallery/
radicjoe@yahoo.com

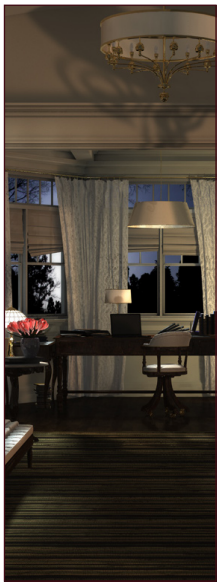


## LUCIANO IURINO

Started back in 1994 with 3d Studio on MS-Dos as a modeller/ texture artist. In 2001 he co-founded PM Studios (an Italian videogame developer) with some friends, and still works for it as the lead 3D artist. He also works as a freelancer for different magazines, web-portals, GFX and videogame companies, and recently he left the 3ds Max environment to move on to XSI.

http://www.pmstudios.it | iuri@pmstudios.it





## FREDI VOSS



Living and working as a fine artist and 3D freelancer in Germany, Fredi – a.k.a. rollmops – can often be found on the various web communities, where he has also won several awards. His client list includes Audi and Siemens, and he also has as Animago Award and a Fine Art degree under his belt!

http://fredivoss.cgsociety.org/gallery/
vuuxx@gmx.de



## WAYNE ROBSON

is a freelance digital artist who has taught Mudbox around the world and has been asked to lecture at the Vienna science academy. He is the programmer behind 'MudWalker' and the mental ray shader for vector displacement using Mudbox maps. currently he's works as a CGI supervisor for Project 2813. He owns Mudbox Hub and PsychoCore Software. www.dashdotslash.net
wayne@dashdotslash.net



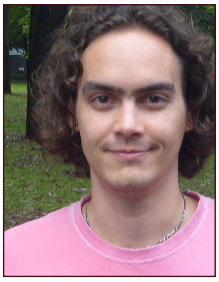


## RICHARD MAEGAKI



Born in Brazil, Richard Maegaki studied at Melies School of Cinema and Animation where he discovered a passion for rigging. After a brief time at Casablanca Animation as a Character Rigger, Richard was hired at Vetor Zero/Lobo and is working there as a Lead Character TD since 2007.

http://riggerman.animationblogspot.com/
richardyzo@gmail.com

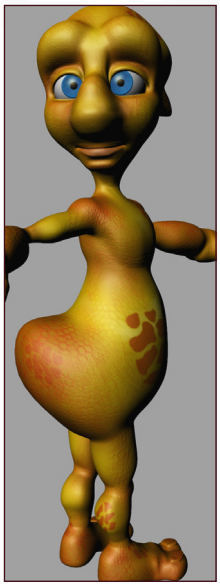


## Danilo Pinheiro

Danilo Pinheiro is a Brazilian with a Physics degree from UFMG. He worked for 5 years as a 3D generalist in films, advertising, arts, HQ, video clips, TV series, etc. After that, he is working as a Character TD, because he enjoys solving problems.

http://nilouco.blogspot.com
nilouco@gmail.com





## Luis San Juan Pallares



My name is Luis San Juan, I am a freelancer with over 9 years CG experience. I have worked as a character setup supervisor and created tools for the studios I worked at, such as Nexus Productions, Keytoon Animation Studios, Ilion Animation Studios and the Mill.

http://www.luis-sanjuan.com
luis@luis-sanjuan.com

## Would You Like to Contribute to 3DCreative or 2DArtist Magazine?

We are always looking for tutorial artists, gallery submissions, potential interviewees, 'making of' writers, and more. For more information, please send a link to your portfolio, or send examples, to: simon@3dtotal.com



Image by Olivier Vernay-Kim


ZBRUSH3.5®
"ZBrush 3.5 has allowed artists a remarkable amount of freedom. ZSketch in particular has redefined traditional polygon modeling and made it much more intuitive. I am grateful for the benefits that ZBrush provides"
CGI Artist
Tae-Bong Lim
Pixologic™
makers of ZBRUSH®
To join our online community visit
www.ZBrushCentral.com
Available now for PC

AVAILABLE NOW!
DVD, Digital Download, Subsciption

THE GNOMON WORKSHOP

LEVEL UP YOUR DIGITAL SCULPTING SKILLS

# TRAIN WITH KILLER ARTISTS




## 3D CHARACTER DESIGN SERIES
WITH SCOTT PATTON

In this two volume series, Scott Patton shows the processes he uses to create a 3D character for feature films. The first volume explores Patton's fast and efficient method for concept sculpting, skipping the 2D sketch phase all together and designing the character entirely within ZBrush®. He covers everything from blocking out the forms and fleshing out the muscles, to adding props, detailing with alphas and posing the character. The second volume covers methods for creating a final color rendering using ZBrush and Photoshop®. Patton shows how he squeezes the most from ZBrush's powerful renderer to create both a wide and close-up shot of the character. He then shares creative Photoshop tips and tricks to quickly get to a finished piece of concept art from the ZBrush renders, covering topics such as adding and refining skin texture, hair, eyes, shadows and scars. Patton also discusses how to create backgrounds that enhance the character and overall composition.

All Tutorials Are Now Available
As DVDs, Digital Downloads,
And Part of The Online Training Subscription

www.thegnomonworkshop.com

Interview With

# Olivier Vernay-Kim

Olivier Vernay-Kim is a fantastic 3D environment artist working next to the beach at Blur Studios in Los Angeles. He works predominantly on cinematic trailers for blockbuster videogames, creating jaw dropping expansive landscapes that will simply blow you away!




"I think developing your personal style is the most important thing."



## Interview with Olivier Vernay-Kim

Firstly it is a pleasure to speak to you, Olivier - we've enjoyed seeing your work in our site gallery for a while now. I'm going to start with an easy one: can you tell us a little about yourself and how you got to where you are today?

I'm a French 3D environment modeler and scene assembler currently working at Blur Studio in Los Angeles. After four years at Supinfocom (3D school) I started to work at Cryo Interactive in Paris (games company). I spent three years there. After some relatively good experiences in smaller companies, I was hired at MagicLab as an environment modeler to work on a *Ghost Recon 3* trailer, which I believe had quite a lot of success. Then I was contacted by a previous co-worker (Jérôme Denjean) who had been already working at Blur Studio for four years. He offered me a job at Blur, which is based next to the beach. It was hard to say no!

What has really impressed us in the office is your ability to create huge scenes with flawless texturing and lighting. Can you tell us a little about your processes?

Wow, thanks! Well, most of the time for my personal projects I define a framing and never change it until the end, so I can do as many tricks as I want since there's only one camera and it's not moving. Whereas with professional projects I use lots of cameras and view angles; it's a different way of working.

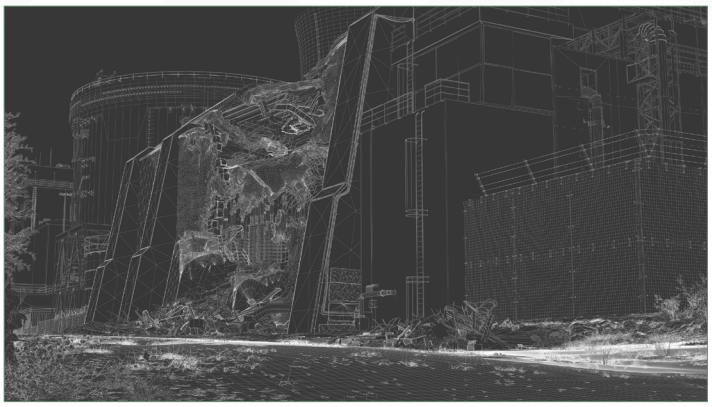
When modeling and texturing large exterior scenes I try to adapt the level of detail according to the distance from the camera (except maybe for instanced objects). In the real world, as the distance is increasing, shapes tend to be more abstract and complex, which can be a real challenge to do in 3D, not to mention that the area covered is enormous too. But I like to do most of my work in 3D. I find that it's more interesting.






"For the last few years, most of my personal projects have started with some assets I created for my professional work."





As for lighting, for exterior scenes it's usually very simple: sun, skylight... A more complex light setup for night scenes, but so far it has always been easier for me to light exteriors than interiors. Moreover doing everything in 3D makes things a lot easier lighting-wise.

It often seems like your scenes are very well planned and the composition and camera placement work very well. Do you ever sketch or create concept work, or do you use references?
For the last few years, most of my personal projects have started with some assets I created for my professional work. I find it's a good way to do things that I never thought I would do, like a nuclear plant or a prison cell! Otherwise I would only make natural landscapes... So I don't really need the preliminary step, I start directly in Max. In fact, even when starting from scratch, I like to play with some primitives in 3D to get a quick view of what I imagine. Of course it's a good technique to do some rough sketches of the basic idea you have, but I personally don't feel the need for it. On the other hand, when I get an idea I spend a lot of time searching for references.

It appears that you have worked on a lot of really big projects particularly in the gaming industry. Are there any projects that particularly stand out as being a lot of fun, or anything that you would change if you did it again?
I'd say the *Ghost Recon* game trailer was the most interesting project for me. Not that I like the subject of US soldiers killing dozens of Mexican soldiers. It was interesting from the beginning because of the freedom I had. I was just asked to make a street in a relatively poor neighborhood in Mexico City, so no concept design, only some reference movies given by Ubisoft. As I started to gather photo reference it became more and more interesting and it eventually ended up being a personal project after the trailer was done.





"WHEN I GET AN IDEA,
I SPEND A LOT OF TIME
SEARCHING FOR REFERENCE."


DOLARES
EXCHANGE

Sometimes we find that sitting in front of a computer all day can be a little draining. What do you enjoy doing in your spare time to get away from the screen?

Now that I have a little boy I like to spend some good time with him and my wife, going out for a walk, playing together, simple things like that! Otherwise I like nature in general, and biking.

Is there anyone who you would say has inspired you or given you any great advice that has really helped you in your time working in CG?

I'd say Marc Bigeast at Supinfocom (image teacher); he knows nothing about CG but has a very good knowledge of graphic arts in general, and many other interesting things. He really helped me to not focus too much on technical aspects when creating something (it can be difficult in 3D sometimes, at least it was for me), as the priority is artistic impression, whatever medium you're using.

I also learnt a lot about how the brain works to identify shapes, so you know what to keep and what to put aside in a scene, depending on the message you want to pass on in the image or animation.

It sounds like you really enjoyed making the *Ghost Recon* trailer. If you could choose any project in the world to work on what would it be? Also have you ever thought about branching out into the movie industry or do you see your future firmly based in gaming?

There aren't any particular projects I'd like to work on, but obviously it would be a project with a lot of time and liberty to give the best I can, with some cool realistic, natural environments to make and the whole thing would be focused on the environments.

I like to work on trailers and cinematics for games because they are short-term projects, so it's a good opportunity to do different kinds of environments. I'm not working on the games themselves (although I did until 2004); I'm not even a real gamer myself, so I like to work on any type of project as long as it involves making substantial 3D environments. By the way, I did work on a few commercials and music videos, and even a ride for a theme park, but of course working on a movie is the ultimate experience and I hope that I won't stay in the game industry all my life !

You seem to have been working in the games industry for quite a few years - how have things changed over this time period? And if there is one piece of advice you could give to someone wanting to get in to the industry, what would it be?

First of all, I'm glad that pre-rendered animations still exist for games. It was quite a big concern five years ago, but despite real-time technology's fast evolution (more on the hardware side these last years), so far they still






haven't managed to compete with the level of detail and quality of lighting which we can get in pre-rendered cinematics. So that's good news for those of us who don't like converting a highly detailed ZBrush model into a 1000 polys mesh!

Otherwise, the industry is so big now it's truly amazing. On one hand it's good for employment (even during the worst period of the economic crisis we were very busy a Blur), on the other hand the games tend to look the same, and as always it's all about making things quickly and making lots of money. It was already the case ten years ago, but it has become an empire bigger than the movie industry, and that's not necessarily a good thing.

If I can give any advice, I think developing your personal style is the most important thing. It's normal to be influenced by other artists and copying what you like is a good way to learn, but if you watch too much TV, see too many films and play too many videogames then you end up doing the same things as everyone: warriors, orcs, naked ladies with guns and shiny robots. Well, if you work in the game industry you may have no choice but at least you can do it with your own style! [Laughs].

Anyway, it would be pretentious to say that I have my own personal style, but I try to stay away from trends.

It must be great being so close to the beach and being able to spend your time with your family there. Your son must think that you have the best job in the world! Do you and your son play many computer games at home? When you play games do you find yourself concentrating more on the environments than the game?

My son is two years old so when he's watching me while I'm working he thinks it's definitely not a lot of fun! By the way, I don't want him to get too addicted to computer screens so I try to keep him away from them, but since I always have something to do on the computer he doesn't understand why he can't have access too!

We play a lot with a Vehicle Simulator, a simple simulation game where you can control any type of vehicle and he loves it.

When playing games I often spend more time looking around than anything else. Like in *Far Cry,* for instance, I spent many hours exploring with the hang-glider, away from enemies!

Thanks you for being interviewed for *3DCreative* magazine, it has been a real pleasure speaking to you.

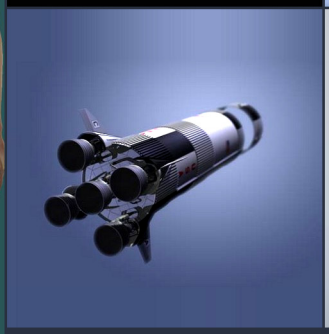
Thank you so much for giving me the opportunity to express myself in your great magazine!

## Olivier Vernay-Kim

For more work by this artist please visit:
http://oli.vernay.free.fr
Or contact him at:
kive7701@yahoo.fr
Interviewed by: Simon Morse







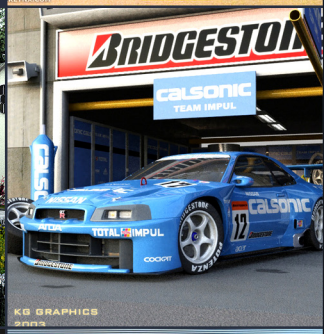



# 3d02.COM
## The Finest 3d Model Store

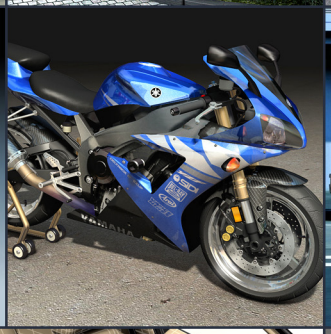
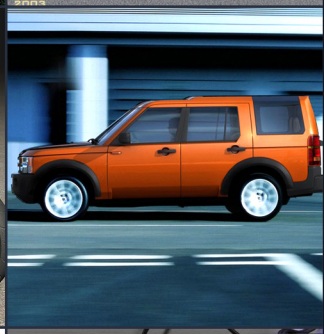
3d02.com. Commonly known as a high quality 3d model store, one of the premier stores of digital assets offering ready to use CG 3d models, and an open platform allowing artists to publish and sell their 3d models online

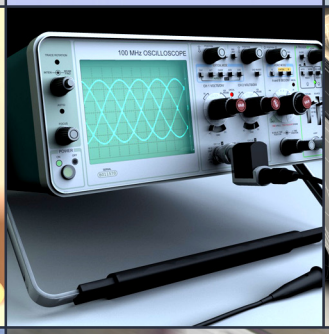




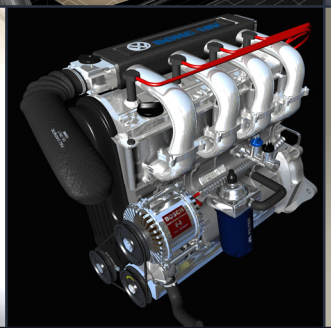





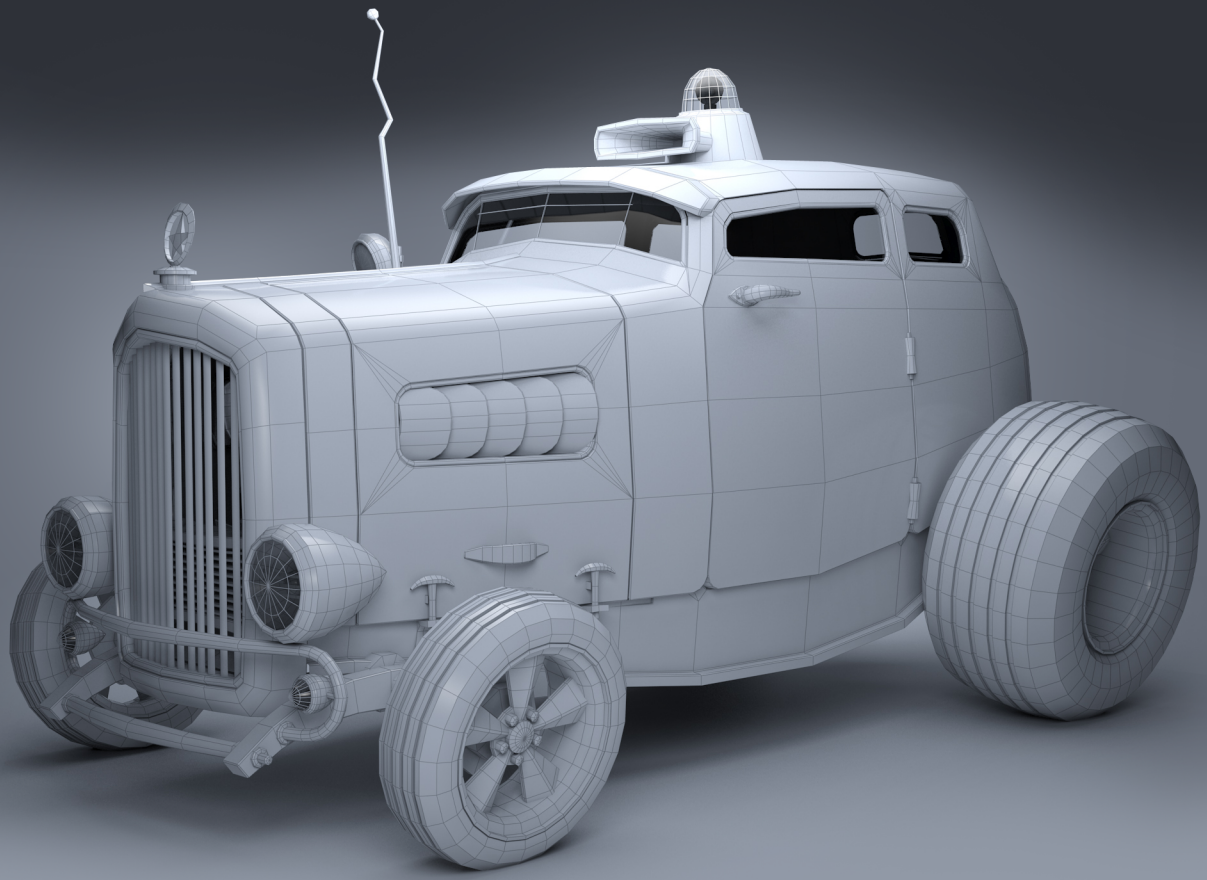








envato



# Premium 3D Objects and Textures

visit 3docean



# THE GALLERY

This month we feature:

Arik Newman

Milad Kambari

Bruno Maremonti

Hans Kristian Andersen

Igor Kudryavtsev

Kimyongsu

Jonas Skoog

Juan Jose Aguilo

Sebastian Barbero

Carlos Ortega

Tarik Ali

## Claudius

Bruno Maremonti
http://www.brunomaremonti.it
zzagno@libero.it



## Are You sure that it will be the Life After?

Igor Kudryavtsev
http://www.eagerart.net
igor.kudryavtsev@gmail.com



# Starcraft 2 Medic fan art

Kimyongsu
greenteh@naver.com



# Majin Buu

Jonas Skoog

jonas_skoog@hotmail.com





Copyright © 2010 POLYBYPOLY. All rights reserved

# Aston Martin DB4 GT Zagato

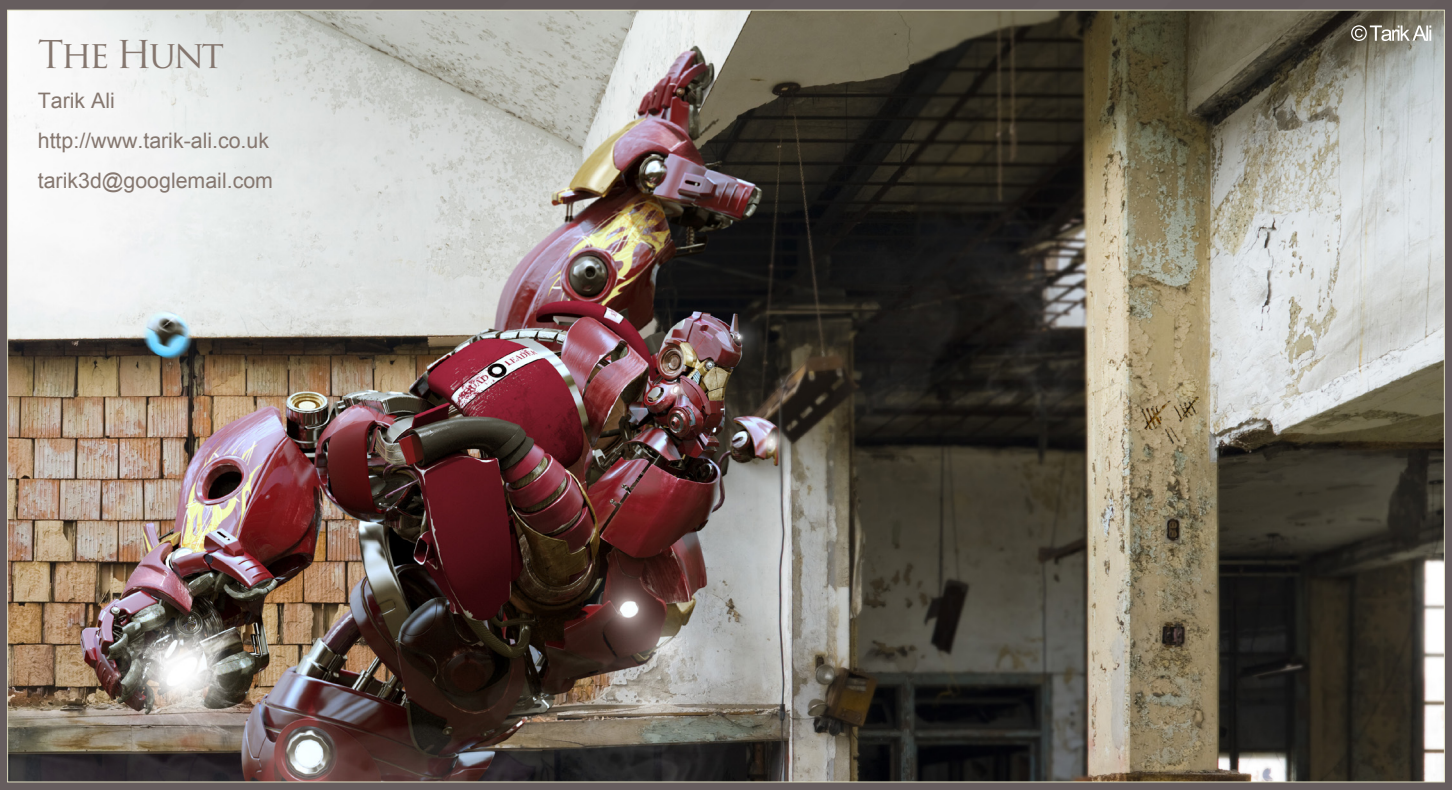
Juan Jose Aguilo - Sebastian Barbero
http://www.polybypoly.com/
seb3dm@gmail.com



# Alien Head

Arik Newman
http://newmancg.com
ariknew@gmail.com






## THE HUNT

Tarik Ali
http://www.tarik-ali.co.uk
tarik3d@googlemail.com



## ECLECTIC DREAM

Milad Kambari | milad_kambari@yahoo.com





## The Flea

Carlos Ortega
http://carlosortega3d.blogspot.com/
strogg_tank@hotmail.com



# Creature Concept

Hans Kristian Andersen

http://hanska3d.com/blogg/

hans3d1@gmail.com

e-on software is proud to announce the winners of the Vue 3D Environment Competition 2010.

# "A Perfect Piece of Nature"

said Eran Dinur, Framestore NY, about the winning entry "Promenade" by Laurent Rodriguez:



*Vue artist Laurent Rodriguez, "Promenade" winner*

**Vue** 3D Environment Competition 2010



*Vue artist Oliver Regueiro, "Over The Clouds" first runner up*

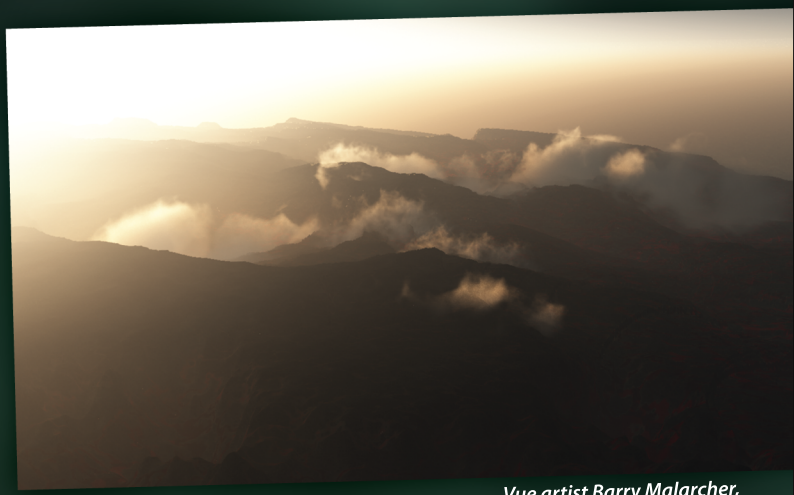
***Discover Our Solutions for Your Digital Nature:***

Vue 9 Digital Nature

carbon scatter

Ozone

LumenRT



*Vue artist Barry Malarcher, "Rock and Clouds At Sunrise" second runner up*

e-on software

www.e-onsoftware.com

©1993-2010 e-on software, inc. All rights reserved Vue, Vue Infinite, Vue xStream, Ozone are trademarks of e-on software, inc. E-on software and the e-on software logo are trademarks or registered trademarks of e-on software, inc. All other trademarks are property of their respective owners. For this document: Use of any trademark is subject to the boilerplate text of this document. Information in this document is subject to change without notice. Images are for identification purposes only. Information in this document is subject to change without notice. Items displayed may not necessarily supplied with the package.

Learn Animation from the Best in the Business



# Think Tank

## TRAINING CENTRE

www.tttc.ca



FOLLOW THIS TUTORIAL SERIES ON PAGE 84

# Environment Lighting

This five part series will focus on the topic of setting up a variety of lighting rigs that reflect natural lighting at different times of the day and manmade interior lighting. Each of the chapters will use the same base scene as a starting point, and will show a step by step guide to finding a lighting and rendering solution that best reflects the desired lighting situation.

The tutorials will explain the type of lights used and how to set up the parameters along with talking about the different methods of tackling the subject. The manipulation of textures may also be covered in order to turn a daylight scene into night scene for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.

## Follow

This month our artists will show you how to turn our seemingly boring scene into a truly atmospheric environment with the forth chapter covering Artificial Light.

So if your interested in seeing the third chapter of this amazing series, please flip to the back of this magazine and enjoy.


- 3DSMAX + MENTAL RAY | PAGE 84
- 3DSMAX + V-RAY | PAGE 94
- CINEMA 4D | PAGE 98
- MAYA + MENTAL RAY | PAGE 104








# Digital Art Masters: Volume 5

## Promotion

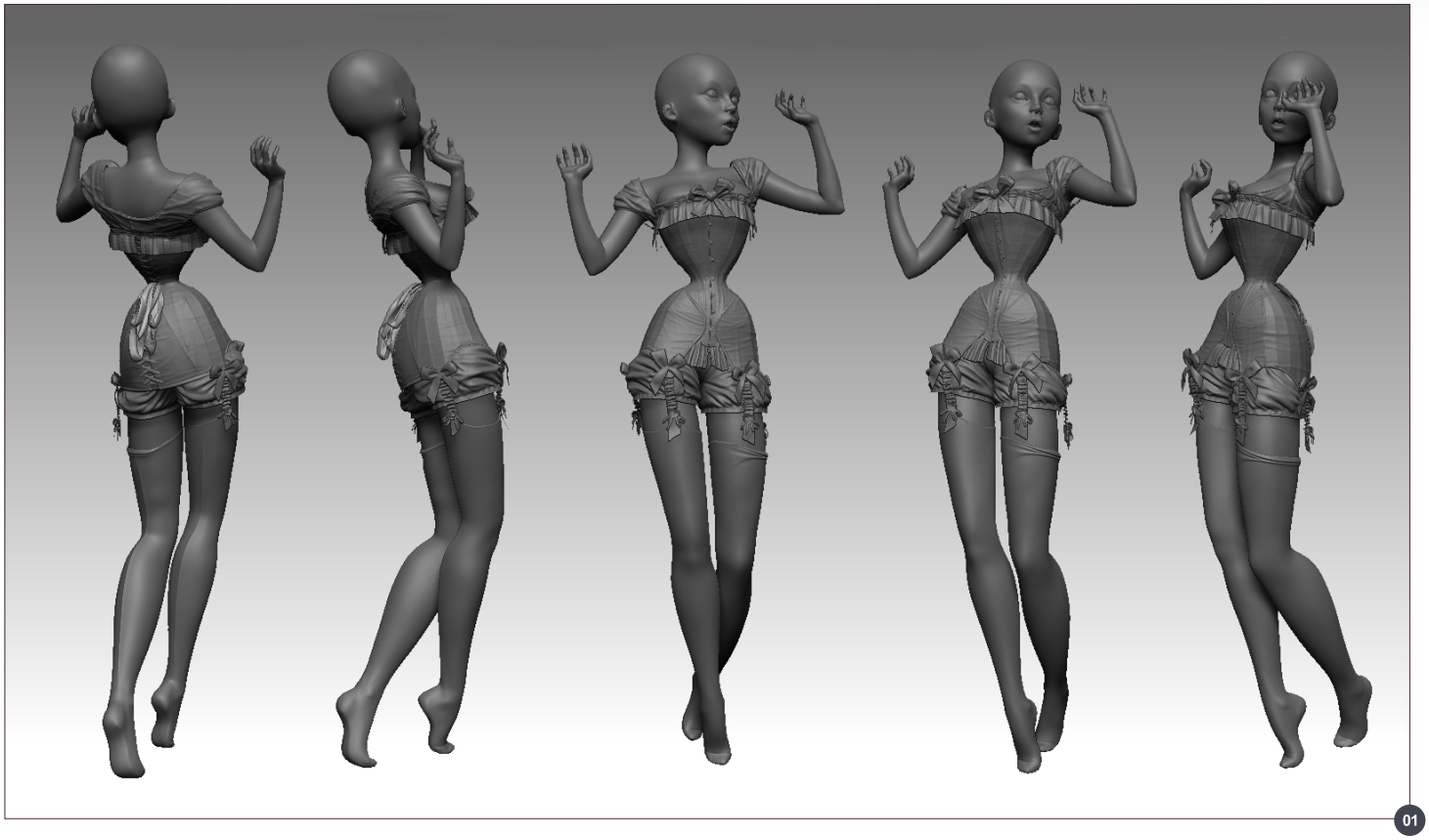
This month as a special treat on our fifth birthday we have provided a sneak peek into the fantastic world of Digital Art Masters! Digital Art Masters is the product of a year's hard work from the team at 3DTotal to find 50 of the best pieces of digital artwork from around the world. Now on its fifth volume Digital Art Masters has gone from strength to strength and to demonstrate that we have given away this free chapter to whet your taste buds!



## Twisted Dolls:

# The Butcher's Bride

By Rebeca Puebla



01

# Twisted Dolls: The Butcher's Bride

Software Used: 3ds Max, Mental Ray, Hair and Fur, ZBrush, Photoshop

## Concept

The Twisted Dolls is a series of cute and sexy pinup dolls inspired by different decades and roles with an undefined style, resting somewhere between cartoon and realistic. The Butcher's Bride is the second character of this series and very different from the first doll (a lady in red and black and inspired by the BDSM culture).




02

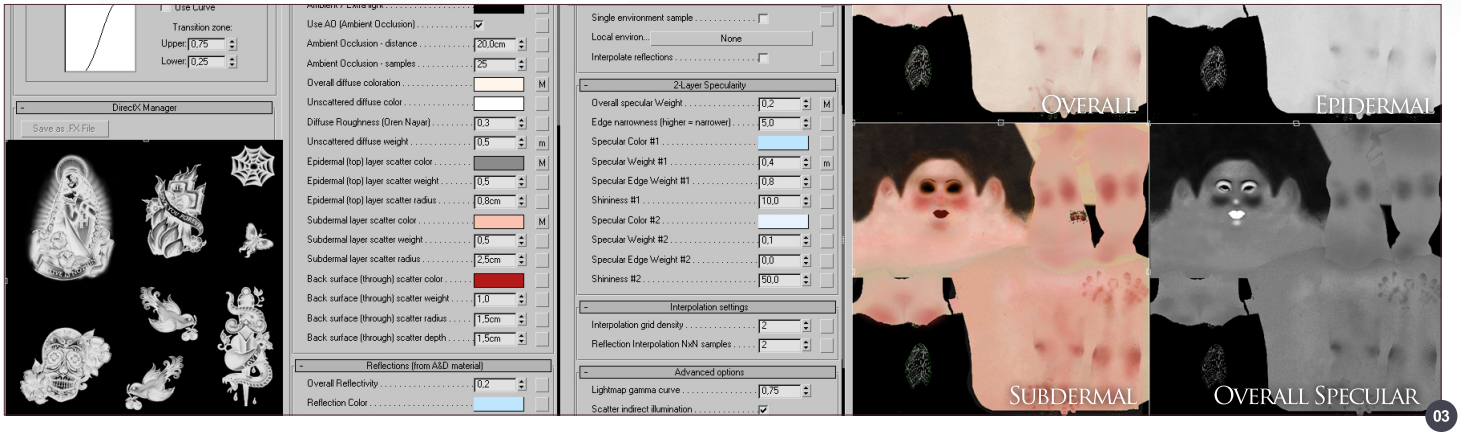
For The Butcher's Bride I wanted to create a beautiful and innocent girl in a Victorian environment trying to escape something horrible. My inspiration for this scene was the pinups of the 1920's. There are many things representative of this period, including wavy red hair, dark makeup, vintage clothes with tights corsets, the dramatic expressions of silent films, melancholic vampires, old school tattoos and dark castles. A genre of comedy very typical of this period is called "cabaret" or "Vaudeville".

## Modeling

I started working with the base from the previous doll, Mistress Lili, since she has similar proportions. Whilst in the resting pose I applied a very basic setup to deform the model quickly and easily to get the correct pose. When this was more or less correct I was able to start modeling the clothes and details. I was lucky and found many interesting references of corsets that helped me a great deal.

I always try to create a really good mesh in 3ds Max before going into ZBrush because after finishing the model in ZBrush I collapse it. The reason for this is that I don´t much like using displacement maps for a unique render or illustration. I will not animate the model and sometimes they cause me a lot of problems so I prefer to collapse the mesh and export to 3ds Max, which consequently makes it more complicated to change anything.

However I am constantly changing the mesh to find the perfect form. Her tense body and extreme proportions balancing on long, shaky legs had to convey all her terror and fragility. The silhouette is really important to a good character and sometimes it is necessary to look again and again at the model, making small changes and having the patience to work towards a great result (**Fig.01**).



03



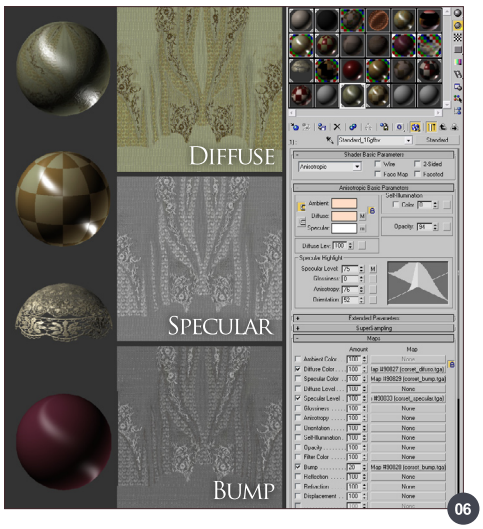
04


05

## TEXTURING & SHADERS

The textures and shaders were very important for the clothes and tattoos. I wanted an opaque and pale skin for the Bride, with very dark eye makeup and a little strawberry mouth. I didn´t want very realistic skin as she is a cartoony doll and preferred this to contrast with the clothes. The tattoos had to be numerous, colorful, look “old school” and be dramatic (virgins, gravestones, snakes, etc.) (**Fig.02**).

I painted the tattoos and skin in Photoshop, but used photo references for the corset and laces because it seemed more realistic. With regard to the materials I used a Blend material with one material assigned to the skin, one for the tattoos and a Mask to mediate between the two (**Fig.03**).



06

You can use different textures in the same area by utilizing more than one map channel, which is very easy. I used Unwrap UVW to create the UV coordinates, which I saved into Map Channel 1. I then unwrapped a new set of UVs for the tattoos, which I saved into Map Channel 2 and saved as a new file (**Fig.04**).

The corset was the most authentic part of this picture and I found numerous beautiful and detailed references. The modeling was far from straight forward though, especially the back, but the main problem was creating a realistic satin and brocade material (**Fig.05**).

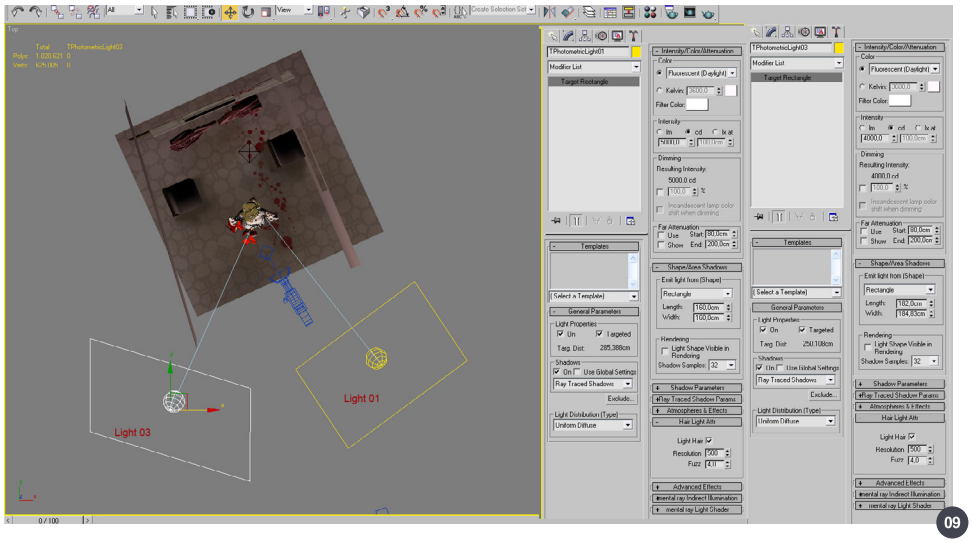
Some Anisotropic highlights were perfect for achieving this effect (**Fig.06**)



07



08




09



10

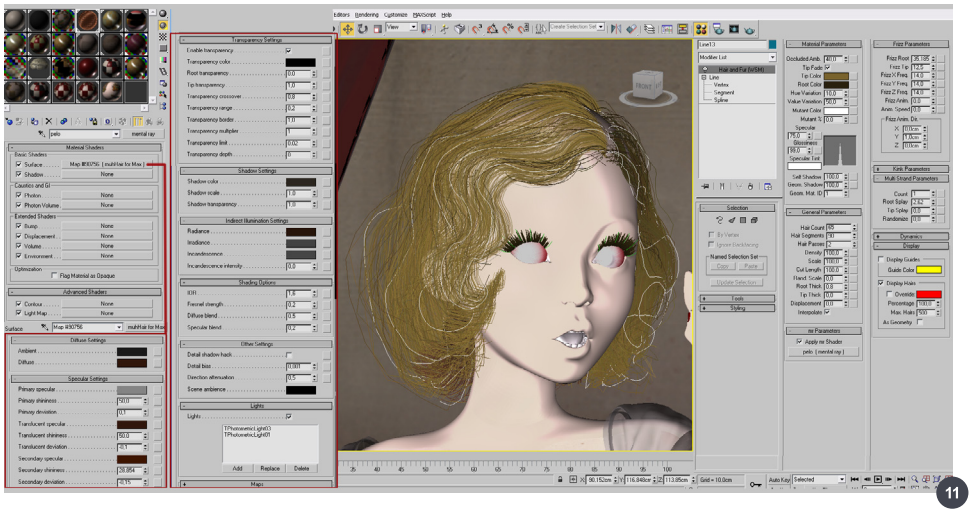
"AT FIRST, THE IDEA WAS TO CREATE A SHADOW IN THE BACKGROUND INSPIRED BY NOSFERATU AND A LIGHT WITH A STRONG CONTRAST TO ADD MORE DRAMA, BUT THE BRIDE'S APPEARANCE SEEMED VERY ARTIFICIAL AND BROKE WITH THE TRADITION OF THE TWISTED DOLLS SERIES"

Other items with a shiny material are her sweet, red high heels (**Fig.07**)

## LIGHTING

The lighting was the part of the process that possibly went through the most changes. At first, the idea was to create a shadow in the background inspired by Nosferatu and a light with a strong contrast to add more drama, but the Bride's appearance seemed very artificial and broke with the tradition of the Twisted Dolls series (**Fig.08**).

I did lots of tests to balance both parts but the results were not convincing. There either seemed to be too much contrast or the scene was very bright with the shadow of Nosferatu assuming more importance than the Bride. I eventually decided on more traditional diffuse lighting using two photometric lights (**Fig.09**). Then I created two columns and curtains to create a darker backdrop and add more depth to the background (**Fig.10**).



11

## Hair

Hair is always complicated and because of the curvy style and the way it parted I encountered problems with the antialiasing and red shader. The dark hair looked nice but the hair was clearer when blonde and red seemed absolutely horrible so I searched the internet for a solution and found a hair material for mental ray called MuhHair, which was perfect (**Fig.11**).

An important consideration for this material is the activation of the checkbox labeled Use Fast Rasterizer, which can be found under Scanline > Render Algorithms of the Renderer. It is also important to change the filter type to Gaussian as this generally gives better results. In this case the Fast Rasterizer increased the render time too much and the Gaussian filter blurred the whole picture so I left the parameters as they were. The result was a good balance between a doll and a real person.



"I'M NOT SURE IF THIS IS A GOOD OR BAD THING, BUT SOMETIMES I GET CARRIED AWAY BY THE CHANGES THAT OFTEN ARISE FROM BETTER IDEAS"

## Conclusion

My final images are never exactly attuned with the original ideas. I'm not sure if this is a good or bad thing, but sometimes I get carried away by the changes that often arise from better ideas, which can be unexpected.

In this picture I wanted to portray "The Vampire's Bride" and instead made "The Butcher's Bride"; similar but at the same time different. The pose, environment, lighting and many other details have changed but the idea has remained more or less the same. Overall it was a complicated image to create but I learnt many things during the process; namely lighting, shaders and hair.

I'm happy with The Butcher's Bride, but as always will aspire to do much better next time.

## Rebeca Puebla

For more from this artist visit
http://rebecapuebla.blogspot.com/
or contact
rebecapuebla@hotmail.com



© Rebeca Puebla

# Digital Art Masters




"Digital Art Masters is getting better and better at showcasing some of today's best digital artists. The way the book shows the processes of achieving great pictures provides a good opportunity to learn from these artists, and keeps you challenged in your own art."

**Raphael Lacoste | www.raphael-lacoste.com/**

Meet some of the finest digital 2D and 3D artists working in the industry today – **Loïc e338 Zimmermann**, **Craig Sellars**, **Jelmer Boskma**, **Maciej Kuciara**, **Daarken**, **Marek Denko**, **Kekai Kotaki**, **Andrew Hickinbottom** and **Marek Okoń**. Become inspired by breathtaking images, paired with the techniques and tricks of leading industry artists

- More than just a gallery book, learn from the best digital artists in the world; each artist offers insight into how their image was created, with discussions of techniques and problem solving solutions
- A source of inspiration for artists of all levels: cutting edge imagery showcases the best in today's digital art
- Featuring more than 50 artists and showcasing over 900 stunning color images in five sections: Sci-Fi, Scene, Fantasy, Character and Cartoon

## Volume 1

The first book in the Digital Art Masters series features 48 of the finest 2D and 3D artists, including Eric Wilkerson, Fred Bastide, Marcel Baumann, Meny Hilsenrad, Natascha Roeoesli, Robert Chang & Thierry Canon

## Volume 2

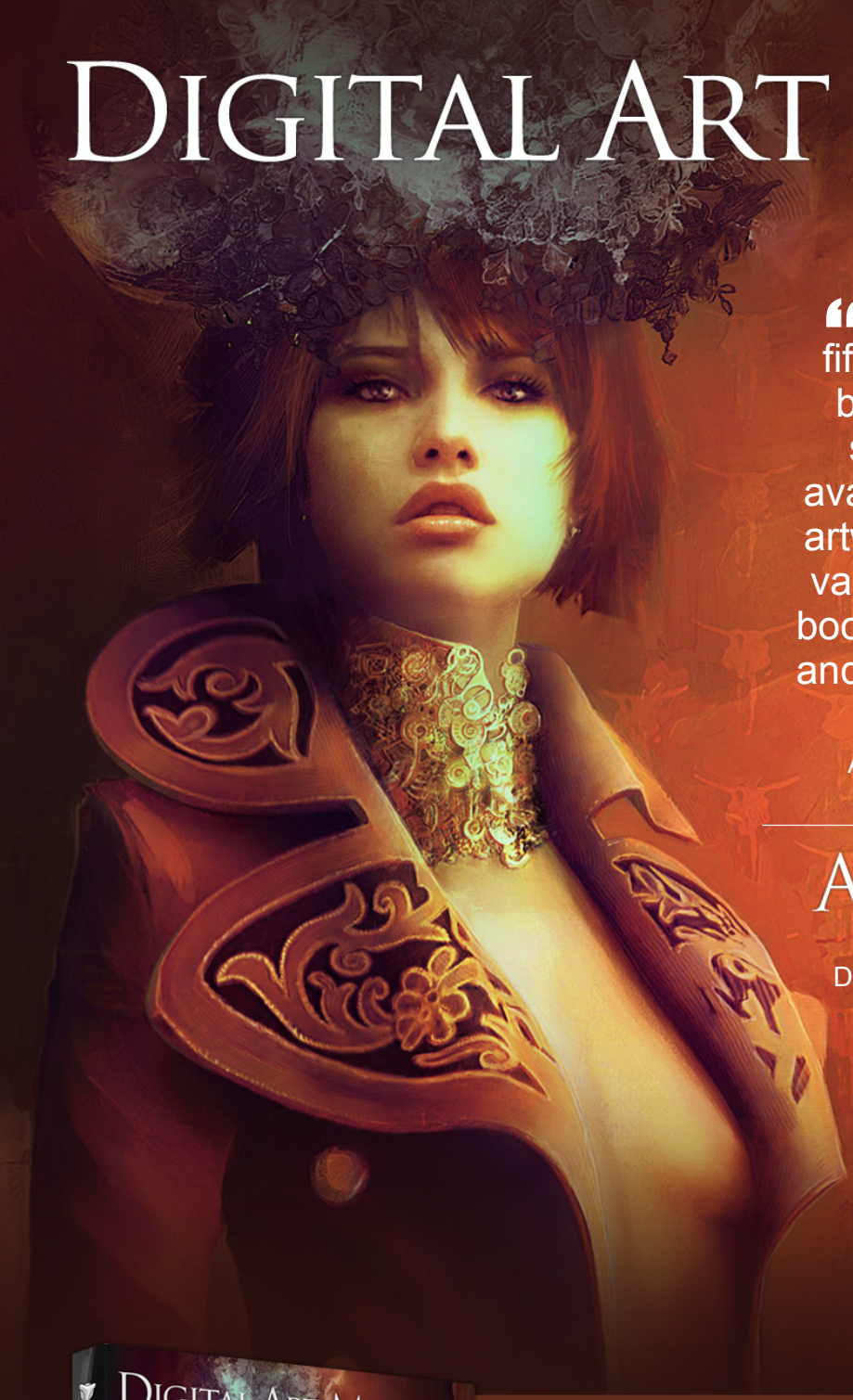
The second book in the Digital Art Masters series features 58 of the finest 2D and 3D artists, including Benita Winckler, Glen Angus, James Busby, Jonathan Simard, Jonny Duddle, Philip Straub & Tae Young Choi

## Volume 3

The third book in the Digital Art Masters series features 60 of the finest 2D and 3D artists, including Damien Canderlé, James Paick, John Wu, Laurent Pierlot, Marc Brunet, Mathieu Aerni, Matt Dixon & Neil Blevins



# DIGITAL ART MASTERS
## :VOLUME 5



"Digital Art Masters is in its fifth edition now, and can easily be considered one of the best showcases of digital artwork available today. The quality of the artworks, the fine printing and the valuable walkthroughs make this book a must-have for any art lover and for any CG artist, professional or beginner."

Alessandro Baldasseroni | www.eklettica.com

## AVAILABLE NOW

View the entire
Digital Art Masters: Volume 5 book online at
www.3dtotal.com/digitalartmasters_v5




Following on from the success of our first four books, we received yet another overwhelming response to our call for submissions for Digital Art Masters: Volume 5. Once again over 1,100 submissions made their way into the Digital Art Masters mailbox, proving to us that the series is becoming ever more popular with not only our readers, but artists around the world too!

From this massive number of incredible entries, the 3DTotal team began the difficult task of choosing approximately 300 images to take through to the next round. To help in the task, we enlisted the help of industry professionals Tim Warnock (matte painter), Till Nowak (3D artist) and John Kearney and Chung Wong (videogame artists - VooFoo Studios) to be our guest judges. These wonderful artists braved the headaches of a grueling judging process and helped the 3DTotal team to select the 50 stunning images that appear in this year's fantastic line-up.

Hardback - 21.6cm x 27.9cm | 304 Full Colour Premium Paper Pages | ISBN: 978-0-240-52171-8

**3DTOTAL.COM**
Visit 3DTotal.com to see our full range Book products



DOWNLOAD RESOURCES

- Free Base Mesh
- Free Movies

# MUDBOX

## FEMALE CHARACTER CREATION

Welcome to Mudbox female character creation with Wayne Robson. This series will be providing a comprehensive guide to sculpting female characters using Mudbox. Wayne Robson will talk us through identifying the characteristics that define what is unique in each of our female characters, and will then give advice about sculpting these using many of the features that are available when using Mudbox.


Chapter 1 | May Issue 056
Gaunt / Old

Chapter 2 | June Issue 057
Obese

Chapter 3 | July Issue 058
Extreme Piercings & Tattoos

Chapter 4 | August Issue 059
Zombie

Chapter 5 | This Issue
Vampire

Chapter 6 | Next Issue
Werewolf

# CHAPTER 5 - VAMPIRE

Software used: Mudbox

## INTRODUCTION

Like with any job, I started by taking a look on Google to see what was out there image-wise, to see if it sparked off any ideas. It seems as if vampires are a massive part of some weird section of the porn industry, which of course was very weird to come across when looking for inspiration!

You may be able to pick out that the hairstyle on this one is very reminiscent of the “Bride of Frankenstein”. This was a conscious decision, although while the Bride’s hair fans out towards the back I turned the back part into more of a beehive to fit better with the framing of the shot.

The head sculpt itself is very similar to what we’ve done so far in this series, so I won’t be going in great detail over that again, but we do have a facial pose that requires both thought and research. Oh, and she has hair... yes proper hair that I have hated for years (Due to being terrible at it). If this series has done one thing for me, it’s forced me to confront my personal bogey man... Max Hair and Fur. I’m pretty pleased with how the hair has turned out on this one and I’ve purposely not made the hair messy. Most vampires in movies and TV seem to be pretty vain, so I can’t imagine them having a photo taken with less than perfect hair.

## VAMPIRE HEAD (AS IN THE HEAD PART OF A VAMPIRE....)

This is a classic example of me not being happy with my original sculpt (**Fig.01**). There are times when I take a look at my initial sculpt a day or two later and think that it could be a lot better! I looked at my model (without hair etc) and thought that it basically just looked like an emo girl with pointy teeth, and not a threatening vampire. Why? The reason is a common one. I took the safe route with the modeling and not the best one.



01



02



03

So I used that initial sculpt as a basis for the final model. I went back to the drawing board concept wise and realized that I had been doing what I “thought” a vampire looked like, but not what it actually looks like. Pr to be more accurate how it is portrayed in popular media (**Fig.02 – 03**).


04


05


06

## OPENING THE MOUTH

The screaming mouth was something I found in references at an early stage, which meant some serious reference hunting for screaming and shouting women. I'd advise Googling both these terms along with any related ones. One thing you will notice from reference hunting screaming and shouting women is that usually when someone is screaming the eyes close. I didn't want this to come across like she was having a nightmare so a little creative license was in order. I changed the mouth pretty late on in the process after the hair was just about to be set up.

The mouth was opened in a similar way to one of our previous articles in this series, using a simple Mudbox bone and a painted weighted area using the Weight brush (**Fig.04**).

I dropped into a side orthographic view to actually open the mouth and switched to the perspective view to check the results. This of course trashed my previous mouth sculpting of the model (which was no bad thing as the mouth was pretty bad as it stood). If you were dealing with a male then a screaming mouth is far easier as there are a lot of wrinkles and folds you can hide behind; with a female there are far less and a weaker/softer jaw line. Approach it with care as you want the end result to be believable. Constantly refer to your references and take nothing for granted.

I added a bit more of a slant to her eyes and a few wrinkles by using a nice pointy brush and adding mass between them (in my case I used the Wax brush and then smoothed things over) (**Fig.05**).

## STUFF TO MISS

I missed out the sculpting of the neck and shoulder area completely as I knew for a fact that they wouldn't be in the final render. If this was part of a full character chances are she would be wearing clothes, and you may wish to add a bit more form-wise in that area. But for this still it works fine. I didn't develop her ears with much detail for a similar reason as I already had a camera angle in mind at this stage, and knew that the ears weren't going to be in full view.

## THE COLOR MAP

The color map for this is laughably simple, so simple that you won't believe it. I painted the whole model a slightly off-white color by dropping it into flat UV layout model (Alt +T is the hotkey to toggle it) and then painting the whole thing with a very big brush (**Fig.06**).

Then I simply painted a nice soft dark, almost black, color for the eyes (**Fig.07**). I then painted the eyebrows on a new layer where I also projected a photo of real eyes and then faded/color corrected them until they fit in. The mouth was pulled from the same image (although I'm not happy with it as it stands in the final render as it looks way too dry) (**Fig.08**).


07

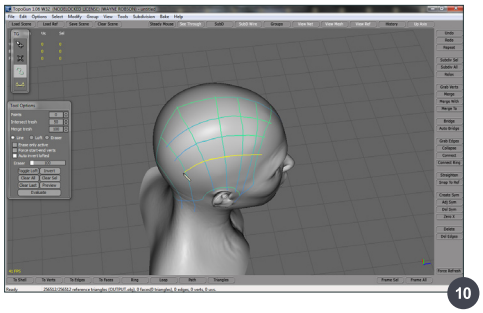

08

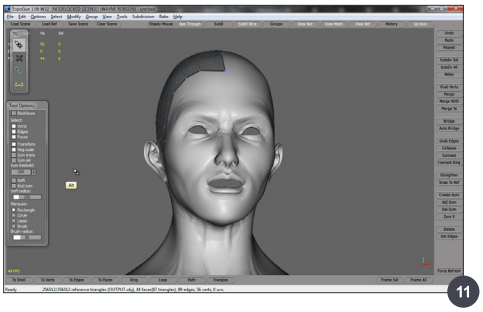
Then I used the Burn brush to slightly darken some of the recessed places and the Dodge Burn to lighten places like the eyelids (**Fig.09**).


09

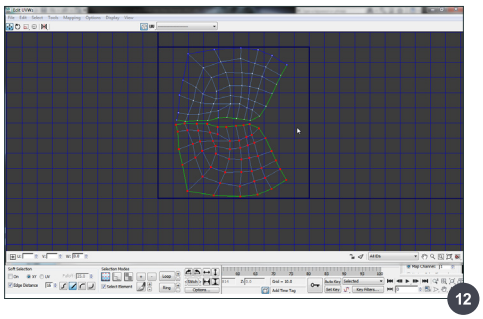
## MAKING THE HAIR CAP

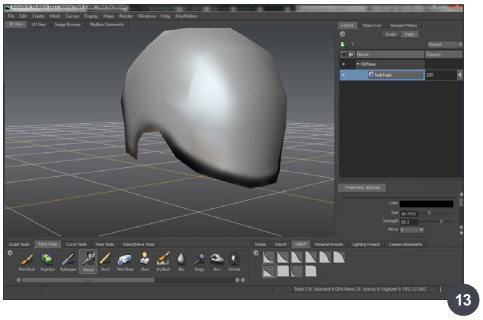
The hair cap was made by exporting a medium resolution version of the sculpt out to Topogun in a single click. (The joys of MudWalker; if you don't have it already then be sure to download it from MudboxHub.com... oh and its free). I created a skull cap for hair growth instead of using a Length map to make the scene a bit easier to handle once the hair was added (**Fig.10 –11**). Plus it's something I consider best practice for adding hair of any kind. This allows me to UV map the skull cap in a way that is best for the job in hand (**Fig.12**).


10

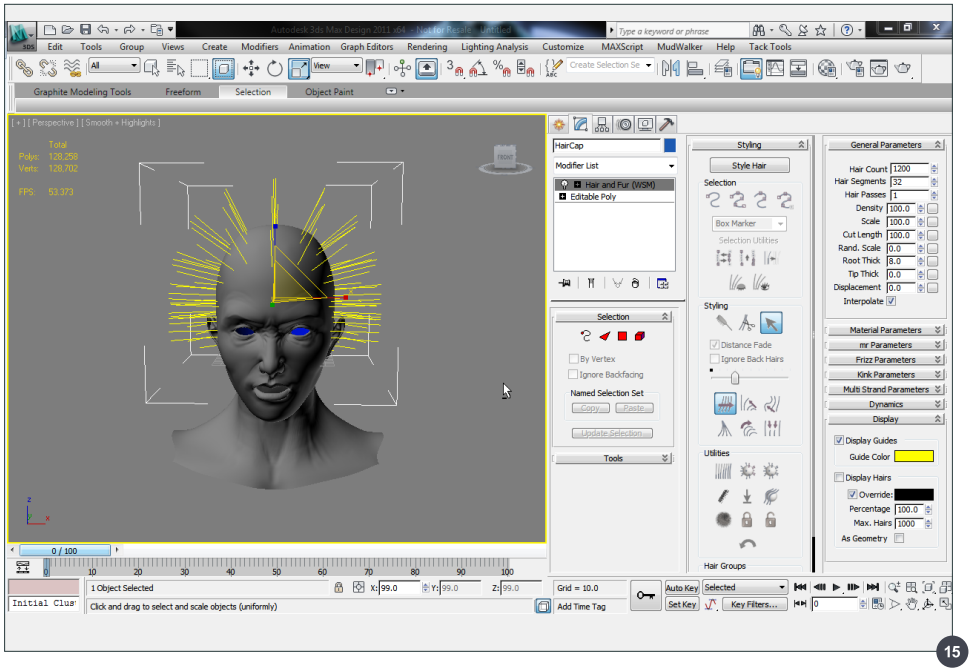

11

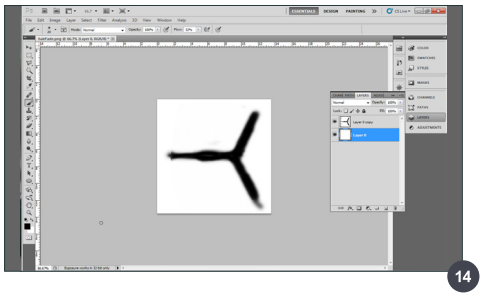
I also painted an Opacity map for the hair cap (see video) so that once the hair was correctly set up I could have the hair "fade in" to help it look more believable. This was a small map (originally painted as a 512x512px map then upped to a 1k x 1k map and corrected in Photoshop.) This was painted with a black edge fading into the white of the rest of the hair map.


12


13

You could add all sorts of maps for hair, but as it's not a hair tutorial I thought it best to keep to simple (**Fig.13 – 14**).


15


14

## HAIRY BITS

I like to think that the hair on the final render looks pretty decent. Along with the videos I'll outline the approach I took to set it up quickly whilst avoiding needing about 6 million tweaks in post (**Fig.15**).

**Tip 1:** Always remove all Frizz and Kink from the default hair before you start setting up your

hair. I have no idea why these are added by default, but to be frank they need to be removed on the default hair! They have been the cause of a lot of bad hair days.

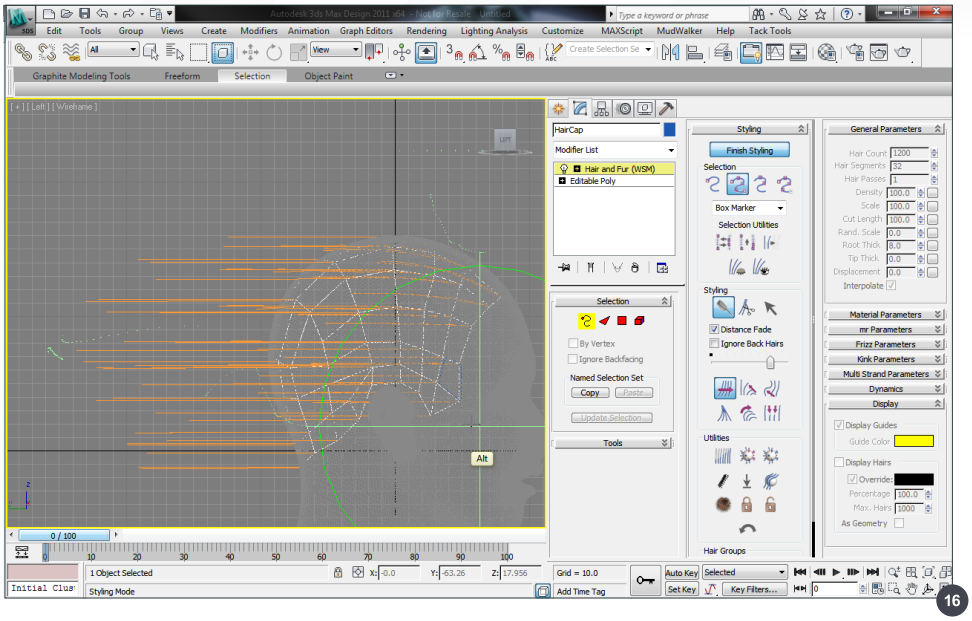
**Tip 2:** Don't add a zillion hairs at first, only enough to cover the head. Don't worry if you can still see the scalp, we'll sort that later.

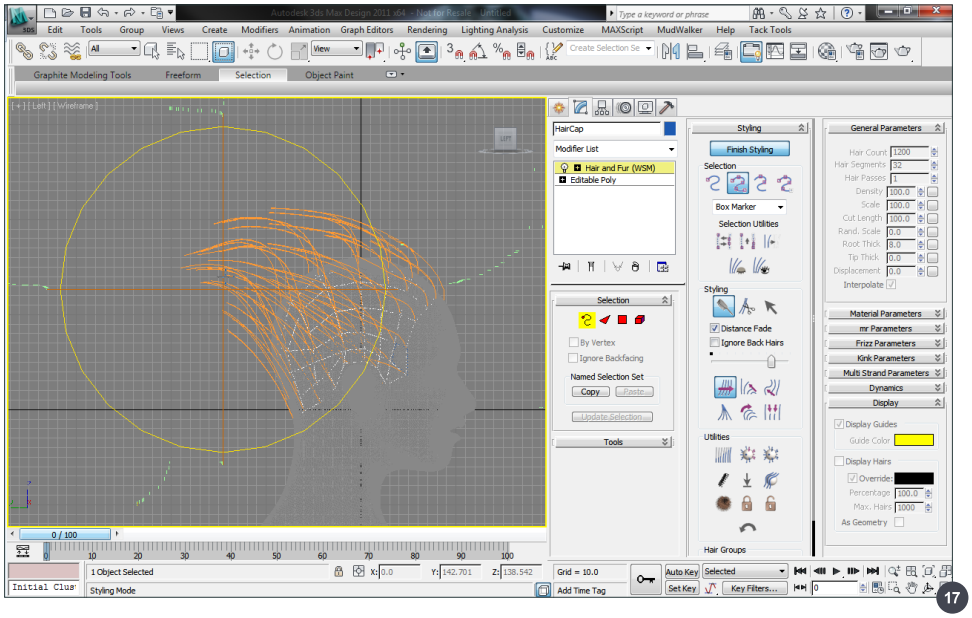
**Tip 3:** Go to the display section of your hair and fur modifier, turn on Display Guides and turn off Display Hairs. Setting up your hair using the guides is a heck of a lot easier.

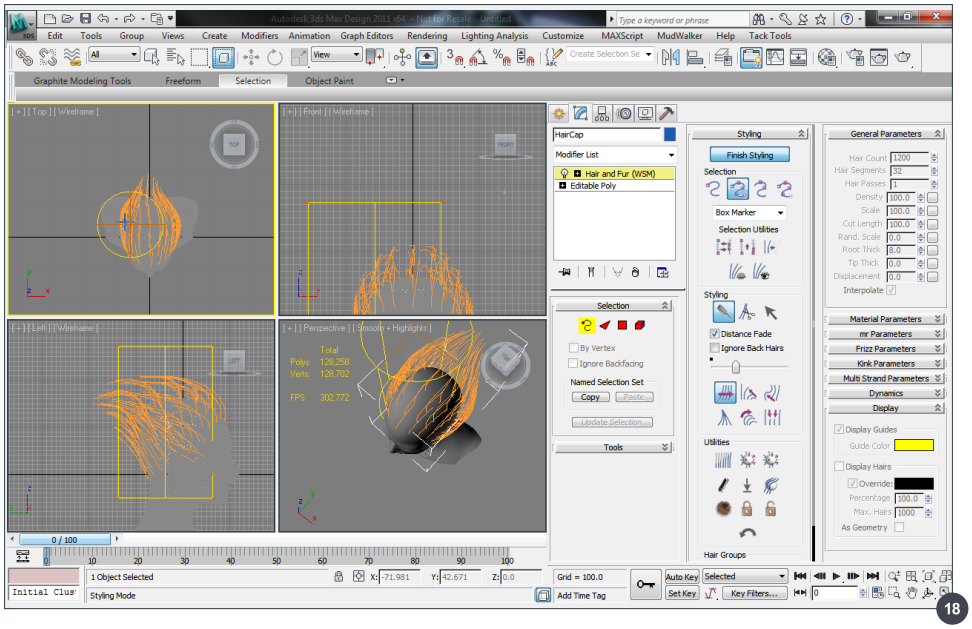
**Tip 4:** Work your hairstyle in stages, don't try to get it bang on the money all at once. Think of it as similar to sculpting. The way I set it up is Directions, then Form then the polish *(**Fig.16 – 17**)*.

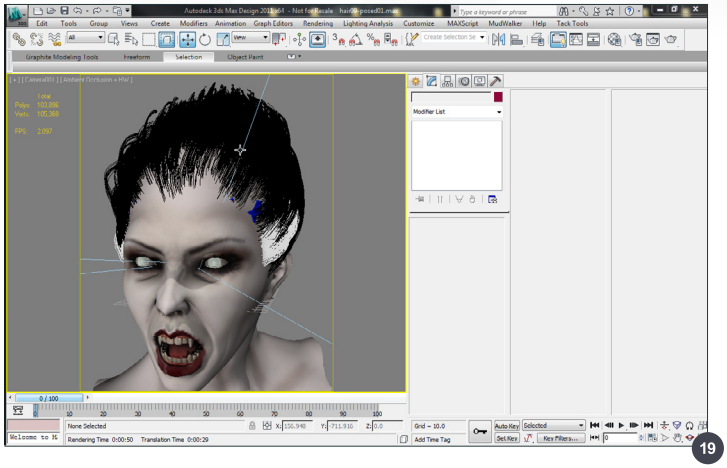
Initially don't bother yourself too much about the root thickness etc, think in more gestural terms and don't try and hit the ball out of the park first time. You will notice from the video that I alternate between a few different hair selection types to style the hair. Once the "big changes" are done then and only then will I switch the display hairs on. (Which I usually switch down to a lower number to keep the viewport interactive) (**Fig.18**).

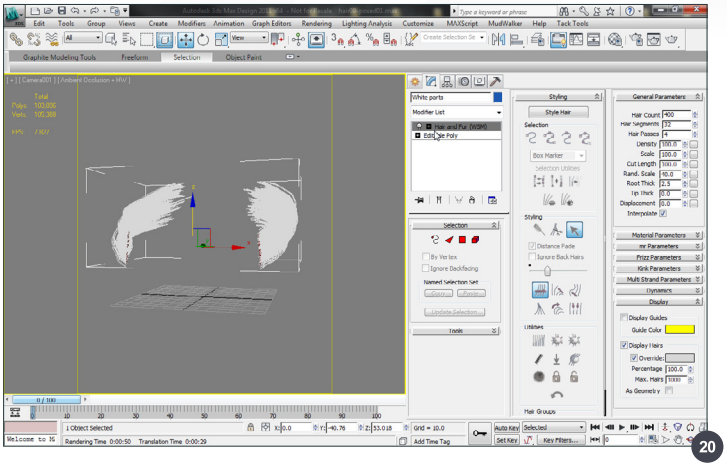
99.9% of the hair styling is covered in the videos so I'll leave that part. Suffice it to say that you want your lights ideally to have a good balance for your hair and your geometry itself. Although, like I did in a previous article in this series, you can break the passes up between "hair lights" that you use only for the hair and "geometry lights" that are for the model itself. This allows you to break your render into passes. (Although really that's making it sound much more advanced than it is as the only passes in that article were my main model and a hair pass). Once your hair is to your liking and "ball park" close to what you want, then and only then can you start adding things like Frizz and Kink to it and play with your material. One big tip is to use


16


17


18

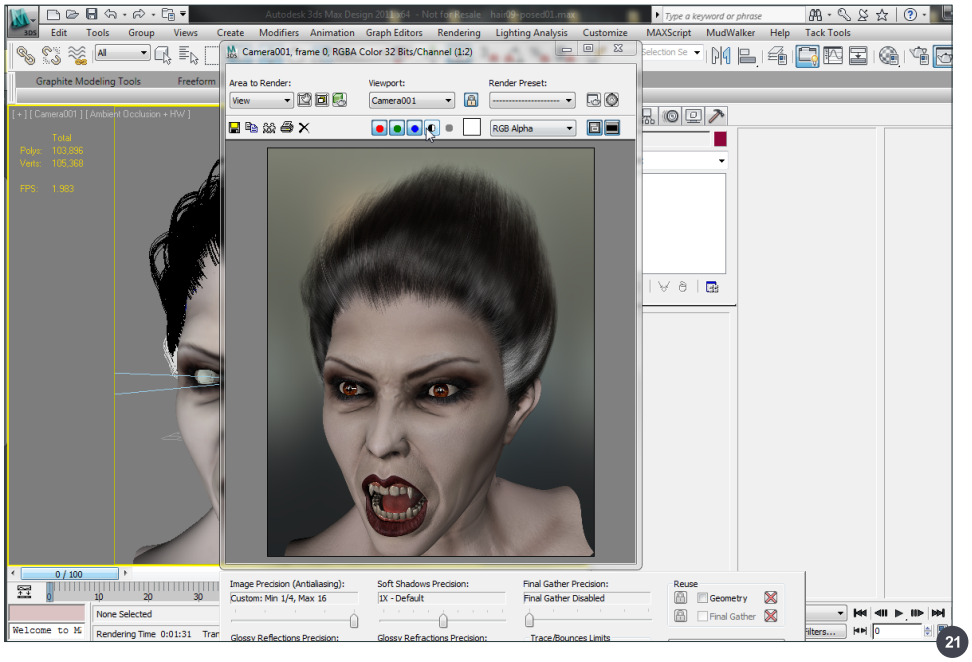

19


20

the multi-strand section of the hair modifier so you don't need to throw a million hairs at it to make it look full and like proper hair. Again this is covered in a bit more detail in the videos.

## TWO TONE HAIR

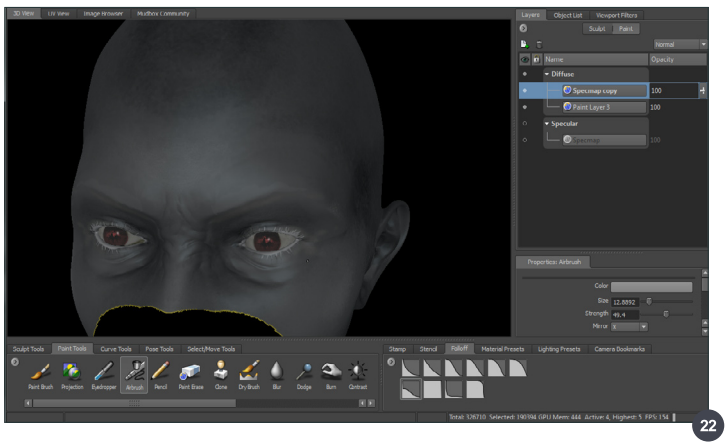
Okay so you will have noticed that the hair is two tone in the render (**Fig.19**). This wasn't done with a painted map (although it could have been easily), but by using a separate bit of hair generation geometry. In this case I wanted to use the material color functions of the hair and fur modifier to their fullest without resorting to yet more maps. More maps = longer renders and I can be a very impatient man sometimes. I simply pulled off a couple of polys either side of the head hair cap and pulled them to the right position. I then treated this hair the same as the main hair only making it a different color. However, I should point out that it's important to maintain continuity with the look of your hair so use as close to the same hair settings as you can. This is unless you want the section to look different for some artistic reason (**Fig.20 – 21**).

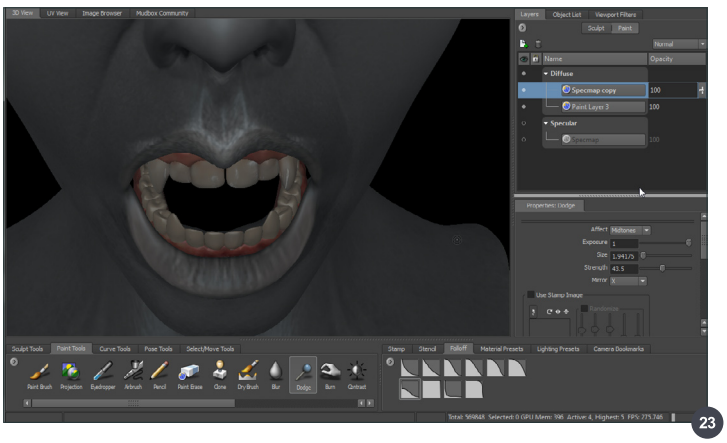

21

## SHINY HAPPY SPECULAR MAPS

The specular map in this case was first pulled from a desaturated version of my color map and then darkened to about a mid gray tonality (**Fig.22**). Then I painted over the area that I wanted to make a bit more shiny. If I'd wanted to push things a bit further I could have added a specular color map which would control the color that each specular highlight reflects back at us (**Fig.23**).

*Specular Amount = How much shininess do you want in an area?*


22


23

*Specular Color = What color do you want this specular amount to be in your render?*

Materials reflect different colors back at us that they receive from their surroundings and from the light itself. So while plastic may reflect back a white highlight in some cases, a wet piece of wood may reflect back a mustard color, or old iron an almost purple color. In some cases you can get away with just a single color at shader/material level. Although there will be cases where a specular color map will help you a great deal (**Fig.24**).

## EYE OF THE VAMPIRE

You know this section's title would make a good title for a hammer horror style horror film. (Note to self: script this title!). The videos for the eye section cover a lot of ground and show how I approached the problem that the eyes didn't look as good as I wanted them to and my way of thinking through the problem. While my thought process creatively can be a bit random to put it mildly, you'll hopefully see that there is a logical approach behind it all.

The problem could be broken down into a simple question: Why am I getting these strange reflections? So after breaking down the lighting and the shader it finally fell to the texture itself, which I redo in the video. This solved the problem (although a nice HDRI for it to reflect would have helped another notch, but I had none handy at the time).

## CRITIQUE

Although I am proud of some parts of this model, such as the hair, others drive me insane when I look at it. Bluntly I ran out of time as I was also recording the Mudbox Masterclass for Siggraph for Autodesk at the time. I was beginning to think I had my own damn TV channel, so time was a luxury! So how would I improve this model? (No model is ever perfect... in fact there are very few of my models I don't detest after a week or two).

Firstly the skin shader needed more work as well as a total redo of the bump map. In this case a texture map didn't cut it at all. Those teeth, they can be most kindly described as a "stand in shader" quality... and more honestly as poor. Next to a picture of real-life teeth, vampire or otherwise they pale into obvious CG-ism. So if I were to do this again I would redo the teeth shader and textures.

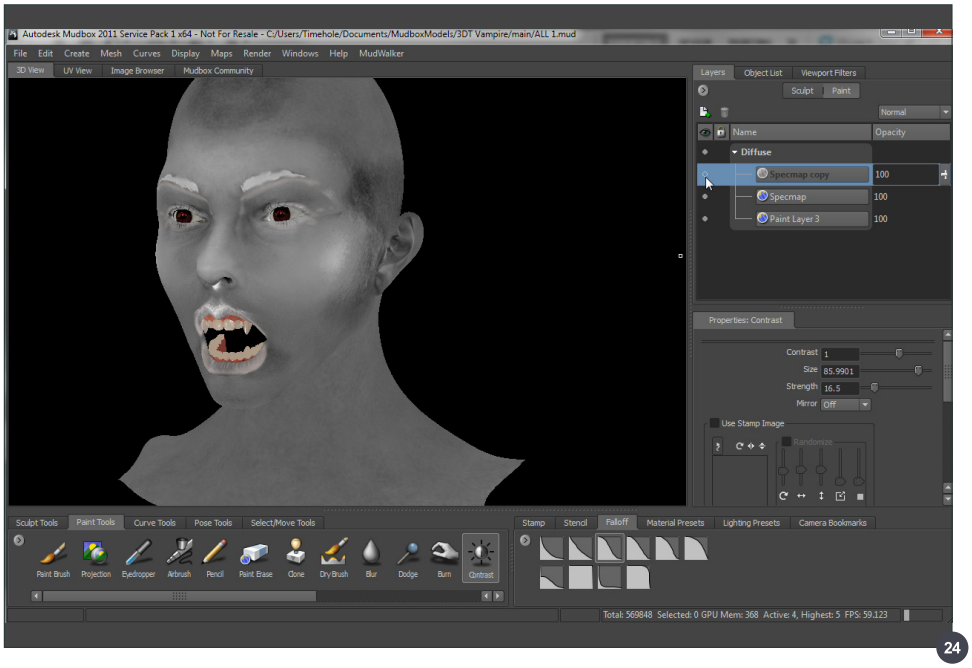
The background as it stands at the time of writing does nothing for the model at all and needs to be ripped out by the heart and buried under six feet of concrete. I also would have preferred a darker lighting scheme, but alas if I'd done this you wouldn't have seen much of the model as you need to.

So basically I've just ripped apart at least 50% of this model, why? Simply because if you are not honest with yourself how can you expect anyone else to be? If art is honesty, then it requires an honest critique, from the creator of the art first and foremost. If you ignore problems in your art then how can you expect others not to see them as well? I tear every single model and sculpt I do to pieces so that I can learn from each model. None of us ever stop learning, it's a never ending process and I've learned over the years not to get too attached to any model. Sometimes you have to be prepared to either let it go, or delete it.

## "THE ONCOMING STORM"

This may not be apparent, but for the last six months I've been nearly having kittens with worry about the next model in this series. (As you may have gathered by now, the subjects for each article in this series were provided to me before I put pen to paper). The next one is a female werewolf; not a subject that's been done too many times (with good reason as I'll outline next time). At this time I have no idea how I will approach it, but I have a feeling it may be a bit different to what you are used to seeing me do.

The amount of hair on a werewolf is a road to insanity for someone like me who hates hair and fur. I have asked the *3DCreative* crew to have a padded cell on standby (**Fig.25**).




## WAYNE ROBSON

For more from this artist visit:
http://www.dashdotslash.net/
Or contact them at:
wayne@dashdotslash.net


DOWNLOAD
RESOURCES
- Free Base Mesh
- Free Movies


Luxology
modo
modo is for artists



JOIN VFS AT THE OTTAWA INTERNATIONAL ANIMATION FESTIVAL! DROP BY, SAY HI, AND FIND OUT MORE ABOUT OUR AWARD-WINNING PROGRAMS.

{ OCTOBER 22 National Gallery, Booth K }

{ OCTOBER 23-24 Arts Court Theatre, Booth 7 }

**VFS ANIMATION & VISUAL EFFECTS ALUMNI CREDITS INCLUDE** 9 Mike Dharney, Animator | Zeke Norton, Previsualization Supervisor | Anuj Patil, Senior Technical Director | Christine Peterson, Digital Compositor **50 Cent: Blood on the Sand (VG)** Giorgio Bertolone, Creature Technical Director **Aliens in the Attic** Rex Ahn, Pre-Visualization Lead | Craig Calvert, CG Supervisor | Julianna Kolakis, Character Designer | Ben Sanders, Supervising Animator | Rommel Shamoun, Compositor | Noel Wright, Digital Compositor | Adam Yaniv, Animation Supervisor **Alvin & the Chipmunks: The Squeakuel** Nicholas Augello, Technical Animator | Christopher Downs, Technical Animator | Amy Lu, Animator | Adam Yaniv, Animation Supervisor **Amelia** Armando Velazquez, Digital Compositor | Clement Yip, Animator **America's Army 3 (VG)** Matthew Turner, Artist **Angels & Demons** Craig Calvert, Pre-Visualization Artist | Jessica Wan, Lead Rotoscope Artist | Noel Wright, Digital Compositor **Armored** Riley Benard, Digital Compositor | Yuta Shimizu, Visual Effects Artist **Astro Boy** Andreas Hikel, Layout Artist Kim Ooi, Animation Director **Avatar** Michael Cozens, Lead Animator | Tamir Diab, Technical Director | Aaron Gilman, Character Animator | Alfredo Luzardo, Layout Technical Director | Ben Sanders, Animator **The Beatles: Rock Band (VG)** Mike Krentz, UI Artist **Brütal Legend (VG)** Marke Pedersen, Senior Artist **Case 39** Riley Benard, Digital Compositor | Craig Calvert, CG Supervisor | Matthias Lowry, Visual Effects | Fion Mok, Matchmove Artist | Teh-wei Yeh, Matchmove Artist **Cirque du Freak: The Vampire's Assistant** Nicholas Augello, Technical Animator | Julianna Kolakis, Character Designer | Ai Saimoto, Lighting Lead **Cloudy with a Chance of Meatballs** Andrew Lawson, Animator | Arun Ram-Mohan, Senior Color and Lighting Technical Director **Coraline** Brian Demoskoff, Animator **A Christmas Carol** Kirk Chantraine, Motion Capture Technical Director | Joel Pennington, Motion Capture Technical Director | Shraga Weiss, Character Modeler | Brent Wong, Character Modeler **District 9** Neill Blomkamp, Director/Co-Writer | Jelmer Boskma, Modeler | Robert Bourgeault, Lighting Lead | Freddy Chavez, Visual Effects Compositor | Dominic Cheung, Lighting Technical Director | Paul Copeland, Visual Effects Artist | Anthony Di Ninno, Animator | Brian Harder, Creature Rigger | Bernhard Huber, Effects Animator | Brett Ineson, Motion Capture Supervisor Steve Johnston, Render Wrangler | Patrick Kalyn, Animator | Bernhard Kimbacher, Visual Effects Data Coordinator/Compositor | Julianna Kolakis, Creature Texture Painter | Adam Marisett, Visual Effects Artist | Nikolai Michaleski, Compositor | Brendon Morfitt, Digital Artist | Fernando Pazos, Animator | Dan Prentice, Visual Effects Artist | Mike Rhone, Visual Effects Artist | Cesar Rodriguez Bautista, Digital Paint & Roto Artist Cynthia Rodriguez del Castillo, Digital Paint & Roto Artist | Marc Roth, Visual Effects Artist | Derek Stevenson, Matchmove Lead | James Stewart, Creature Supervisor | Richard Sur, Lighting Technical Director | Anna Tonrungroj, Digital Compositor | Shawn Walsh, Visual Effects Executive Producer | Joey Wilson, Modeler/Texturer | Samson Wong, Matchmove Artist **Drag Me To Hell** Thomas Schelesny, Visual Effects Supervisor **Dragon Age: Origins (VG)** Bobby Bath, Character/Creature Artist | Ryan Lim, Lead Creature Character Artist | Herbert Lowis, Artist | Brian Sum, Concept Artist Nathan Zufelt, Cinematic Animator **Escape from Planet Earth** Giorgio Bertolone, Creature Technical Director | Anthony Di Ninno, Layout Artist | Craig George, Head of Story | Gary Hendry, Layout Artist | Nicholas Smolyn, Layout Artist **Eureka** Anuj Patil, Lead Compositor | Mike Rhone, Visual Effects Artist **Fast & Furious** Ben Dishart, Texture Artist | Armando Velazquez, Digital Compositor **The Final Destination** David Yabu, Animator **G-Force** John Iskandar, Lighting and Compositing TD | Ken Kaiser, Animator | Hyun Chul Jung, Animator | Andrew Lawson, Animator | Phan Wiantrakoon, Animator **Ghostbusters: The Video Game (VG)** Giorgio Bertolone, Creature Technical Director | Winston Fan, Compositor | Harry Liu, Junior Motion Capture Editor | Jessica Mih, Modeler | Maya Zuckerman, Visual Effects Artist **GI Joe: The Rise of Cobra** Jelmer Boskma, Modeler | Patrick Conaty, Digital Compositor | Ben Dishart, Texture Supervisor | Aruna Inversin, Digital Compositor | Julianna Kolakis, Concept Artist/Modeler | Sean Lewkiw, Visual Effects Artist | Tom Piedmont, Digital Artist | Jeremy Stewart, Senior Animator | Jeff Tetzlaff, Lead Modeler | Jessica Wan, Lead Rotoscope Artist **Grey Gardens** Armando Velazquez, Digital Compositor **Halo 3: ODST (VG)** Bartek Kujbida, Cinematic Animator **Harper's Island** Steve J. McLeod, Digital Compositor **Harry Potter and the Half-Blood Prince** Harry Mukhopadhyay, Lead Effects Technical Director | Pietro Ponti, TD Generalist | Gia Sadhwani, Digital Effects Artist | Kieran Tether, Digital Artist | Teh-wei Yeh, Lighting TD **Ice Age: Dawn of the Dinosaurs** Scott Lemmer, Animator | Thom Roberts, Animator | Brent Wong, Modeler **Invictus** Christopher Ahrens, Lighting Lead | Geoffrey Hancock, Visual Effects Supervisor | Sean Lewkiw, Digital Effects Supervisor | Jason McKeeman, Lead Technical Animator | Farhad Mohasseb, Compositor | Michelle Skrzyniarz, Matchmove Artist | Jose Yapor, Animator **Killzone 2 (VG)** Andrea Arghinenti, Technical Artist **King of the Hill** Michael Loya, Director **Knowing** Tim Rowlandson, Rigging Technical Director | Richard Sur, Lighting Technical Director **Land of the Lost** Nicholas Augello, Massive Technical Director | Tony Etienne, Lighting Supervisor Amy Lu, Character Animator **Law Abiding Citizen** Freddy Chavez, Compositor | Veronica Marino, Compositor | James McPhail, Effects Animator | Jacob Curtis Miller, Matchmover | Jay Randall, Visual Effects Supervisor | Derek Stevenson, Matchmover | Shawn Walsh, Visual Effects Executive Producer **The League of Super Evil** Daphne De Jesus, Compositor | Barry Karnowski, Animation Supervisor **The Lord of the Rings: Conquest (VG)** Michelle Lam, Lead Character Artist **The Lovely Bones** Michael Cozens, Previs Animator **Monsters vs. Aliens** Jiyoung Lee, Texture Artist **Night at the Museum: Battle of the Smithsonian** Rex Ahn, Previsualization Lead | Nicholas Augello, Technical Animator | Christopher Downs, Technical Animator | Joshua Herrig, Lead Lighter | Zeke Norton, Previsualization Supervisor | Ai Saimoto, Lighting Lead | Ben Sanders, Supervising Animator | Derek Stevenson, Previsualization Artist | Joey Wilson, Previsualization Artist | Adam Yaniv, Animation Supervisor **Orphan** Francisco Moncayo Moreno, Digital Artist | Shawn Walsh, Visual Effects Executive Producer **Paul Blart: Mall Cop** Riley Benard, Digital Compositor **Planet 51** Sandro di Segni, Senior Effects TD | Jorge Kirschner Torres, Modeler | Gianfranco Valle, Effects Animator **Prototype (VG)** Harry Ahn, Lead Cinematics Animator | Bobby Bath, Lead Character Artist **Punch-Out!! (VG)** Nelson Garcia, Concept Artist **Pushing Daisies** Scott Dewis, Visual Effects **Red Faction: Guerrilla (VG)** Dilber Mann, Project Manager **Resident Evil 5 (VG)** Jacob Palmer, Animator **Rock Band Unplugged (VG)** Mike Krentz, Artist **Sanctuary** Julie Bergman, Animator | Mladen Miholjcic, Visual Effects Artist **Shorts** David Yabu, Animator **Sorority Row** Mike Rhone, Visual Effects Artist **Star Trek** Aruna Inversin, Digital Compositor | Tom Piedmont, Digital Plate Restoration | Kieran Tether, Digital Artist | Teh-wei Yeh, Digital Artist **Stargate Universe** Daphne De Jesus, Digital Compositor | Julianna Kolakis, Character Designer | Daniel Osaki, Lead 3D Modeler | Anna Tonrungroj, Digital Compositor **Supernatural**, Daphne De Jesus, Digital Compositor **Surrogates** Anthony Di Ninno, Animator | Joshua Herrig, Lighting Artist/Look Dev Artist | Matthias Lowry, Digital Compositor | Laurie Powers, Compositor | Teh-wei Yeh, Digital Artist **Tales of Monkey Island (VG)** Jason Findley, Character Artist **Terminator Salvation** Geeta Basantani, Digital Matte Painter | Teh-wei Yeh, Lighting Technical Director **Transformers: Revenge of the Fallen** Allen Holbrook, Animator | Aruna Inversin, Compositor | Stephen King, Animator | Henri Tan, Creature Technical Director | Kieran Tether, Digital Artist | Teh-wei Yeh, Digital Artist **The Twilight Saga: New Moon** Dominic Cheung, Lighting Technical Director **Uncharted 2: Among Thieves (VG)** Mike Yosh, Lead Animator **Underworld: Rise of the Lycans** Pearl Hsu, 3D Artist | Lon Molnar, Visual Effects Production Executive **Up** Bill Watral,

VFS

3D ANIMATION & VISUAL EFFECTS | CLASSICAL ANIMATION | DIGITAL CHARACTER ANIMATION

Vancouver Film School. **vfs.com/animationvfx**



Visual Effects Artist **Warhammer 40,000: Dawn of War II (VG)** Ian Cumming, Senior Artist | Allan Dilks, Artist | Nathan Hocken, Lead Animator | Christine Hubbard, Artist | Claire Roberts, Artist | Jefferson Takahashi, Artist **Watchmen** Ori Ben-Shabat, Compositor Jelmer Boskma, Previs Modeler | Freddy Chavez, Compositor | Dominic Cheung, 3D Artist | Ben Dishart, Texture Artist | Ty Duperron, Modeler | Pearl Hsu, 3D Artist | Bernhard Kimbacher, Digital Artist | Sean Lewkiw, Technical Head of 3D | Matthias Lowry, Digital Compositor | James McPhail, Digital Effects Artist | Jacob Curtis Miller, Digital Artist | Lon Molnar, Visual Effects Supervisor | Harry Mukhopadhyay, Lead Effects TD | Cynthia Rodriguez del Castillo, Digital Artist | Derek Stevenson, Matchmove Artist | Shawn Walsh, Visual Effects Supervisor | Samson Wong, Compositor **Wheelman (VG)** Laura Gorrie, Senior Animator **Whiteout** Armando Velazquez, Digital Compositor | Clement Yip, Animator **Wolfenstein (VG)** Jason Martin, Modeler **X-Men Origins: Wolverine** Geeta Basantani, Digital Matte Painter | Rommel Shamoun, Compositor | Jeremy Stewart, Previs Artist **Zombieland** Mike Rhone, Visual Effects Artist

**VFS student work by Thiago Martins**

Chapter 1 | April Issue 056
Planning your Rig

Chapter 2 | May Issue 057
Knowing your Tools

Chapter 3 | June Issue 058
Rig Creation – Part 1

Chapter 4 | July Issue 059
Rig Creation – Part 2

Chapter 5 | August Issue 060
Rig Creation - Part 3

Chapter 6 | This Issue
Facial Rigging and Scripting



# INTRODUCTION TO RIGGING

The aim of these tutorials is to show and explain how you might tackle rigging your 3D character for animation. These tutorials will give help and advice to novices and experts who are looking to build on their rigging skills or approach rigging for the first time. The series gives a detailed step by step guide as to how to approach rigging but also shows us how to tackle common problems and issues that regularly occur even in a professional environment. The artists will be reflecting on working in the industry as well as talking us through their individual approaches to creating the best rigs possible.

DOWNLOAD RESOURCES

This download includes
- Free Scene Files
- Free Macro Scripts

# INTRODUCTION TO RIGGING: 6 - FACIAL RIGGING AND SCRIPTING

Software used: 3ds Max

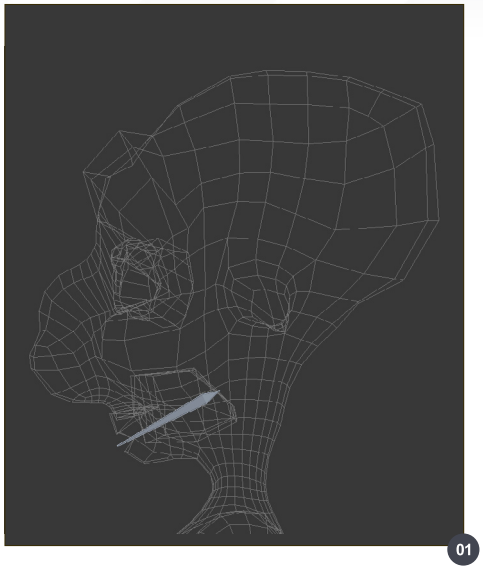
## CHAPTER OVERVIEW

Welcome to the sixth and last chapter of the Introduction to Rigging Tutorial Series for Max. In the previous chapters we rigged all the character body parts, so now it is time to rig the face and create a nice UI for the animator to work with. With this done, we will have the character fully rigged.

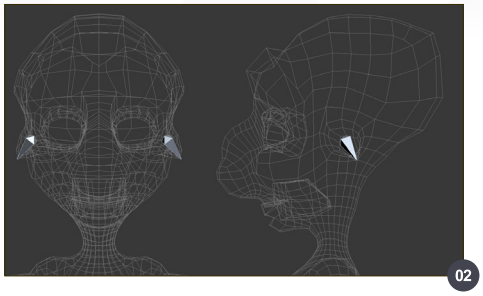
After that we will use maxscript to help match the FK system to the IK system or vice-versa. This is always needed by the animator for changing from FK to IK in legs or arms without jumps or issues; doing it manually can take a long time so we will provide you with a tool that makes doing it quick and easy.

Note: This tutorial has been done with Autodesk 3ds Max 2010, but it can be followed with previous versions of Max (until 3ds Max 7; previous versions would lack the necessary tools).

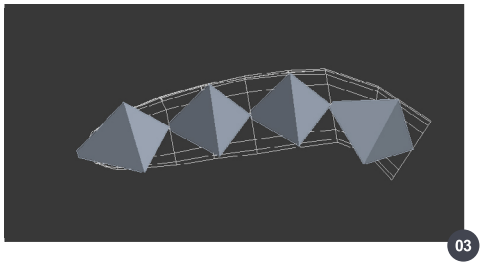
When we use specific tools only available in Max2010, we will mention it and explain how to make something similar with previous Max versions if needed.



01



02



03

Note: During this chapter you will find the word Maxscene followed by the name of the Max file. These Max scene files are provided by this tutorial; the files are created to illustrate the lessons. Remember to move the time slider, as a lot of them are done with animation to better illustrate the examples.

The files had been created in Autodesk 3ds Max 2010 so can be opened only with this version of Max or newer ones.

Note: As we explained in the previous chapter, we are using macroscripts; to do the installation just follow the instructions in the third chapter. There will be a small readme.txt that will explain the installation again in case it is needed.

We are not going to explain each new macro. They will be properly explained the first time we mention each one. After that, we will only say to use a macro in particular - we will not explain what it does. Lots of macros have been explained in previous chapters. Please reinstall the macros as there have been small changes made for this lesson.

## FACE RIG

We will only use one jaw bone. Be careful with the placement - do a few tests with quick skin before you commit to one final placement of the jaw (**Fig.01**).

Put in one bone for each ear to create subtle movement. Ears don't have bones in reality, but it will help in the skinning (**Fig.02**).

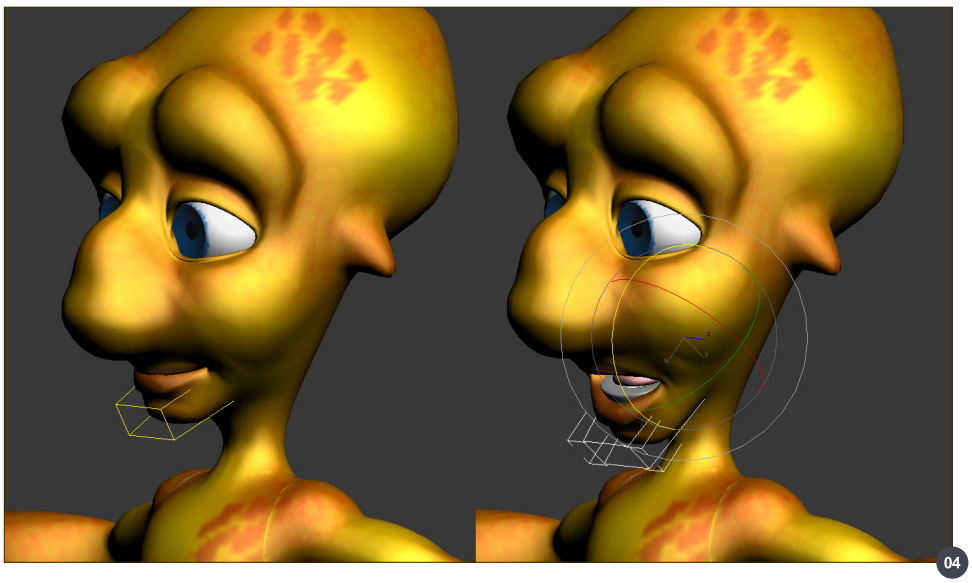
For the tongue we will use four bones to properly deform the mesh and achieve the desired shapes (**Fig.03**).

## CONTROLS

For the animation of the face we'll use a combination of FK controls that we can manipulate on top of the mesh and a face mask to drive the morphs.

## JAW

A control we can move and rotate and the teeth and tongue can follow (**Fig.04**).



04

## Lower Teeth

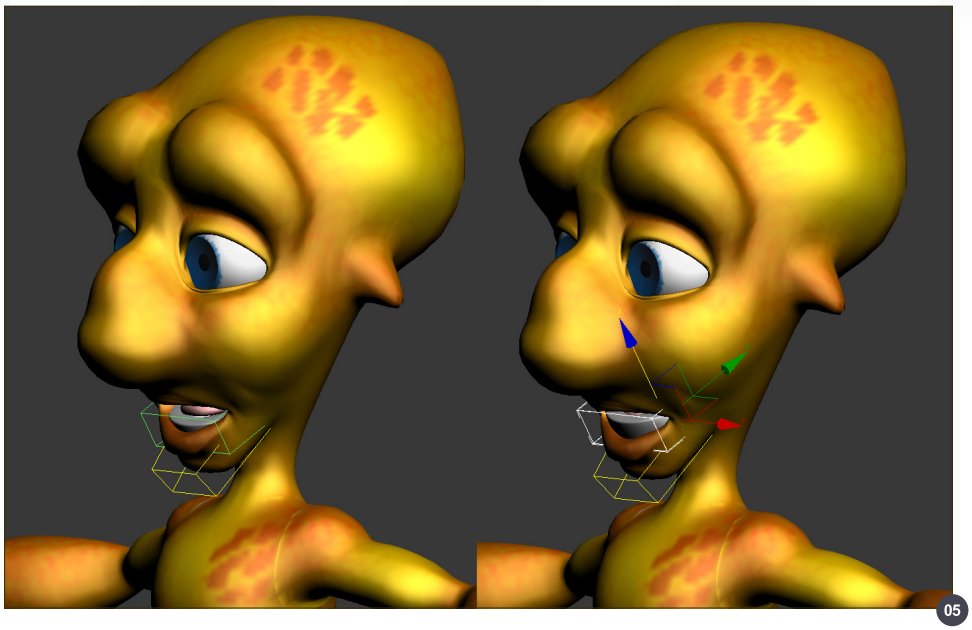
It is always good to be able to move and rotate the teeth if is needed for a desired pose (**Fig.05**).

## Tongue

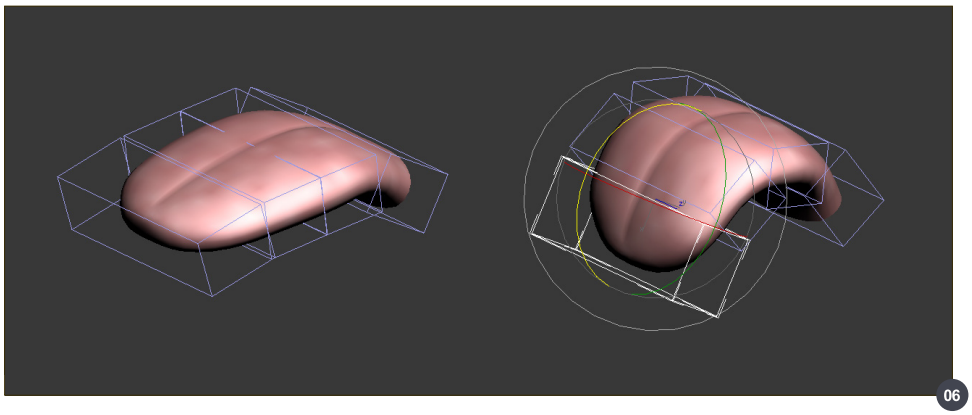
The best way to animate the tongue is by using a FK chain of controls - the tongue will follow the jaw movement (**Fig.06**).

## Face UI

I prefer a nice UI that makes animating easier, so the UI we are going to use is a mask to select controls for the eye brows, jaw, lips and lip corners so you can animate them as you would move them in reality (**Fig.07**). So if you grab a lip corner and move it on the side it will move the corner of the mouth to the side. I like each icon to be quite graphic so the user is not confused by what he is grabbing. I prefer this kind of face rig instead of custom attributes with a long list of attributes. This is much quicker way of animating, and much easier to manipulate.



05



06

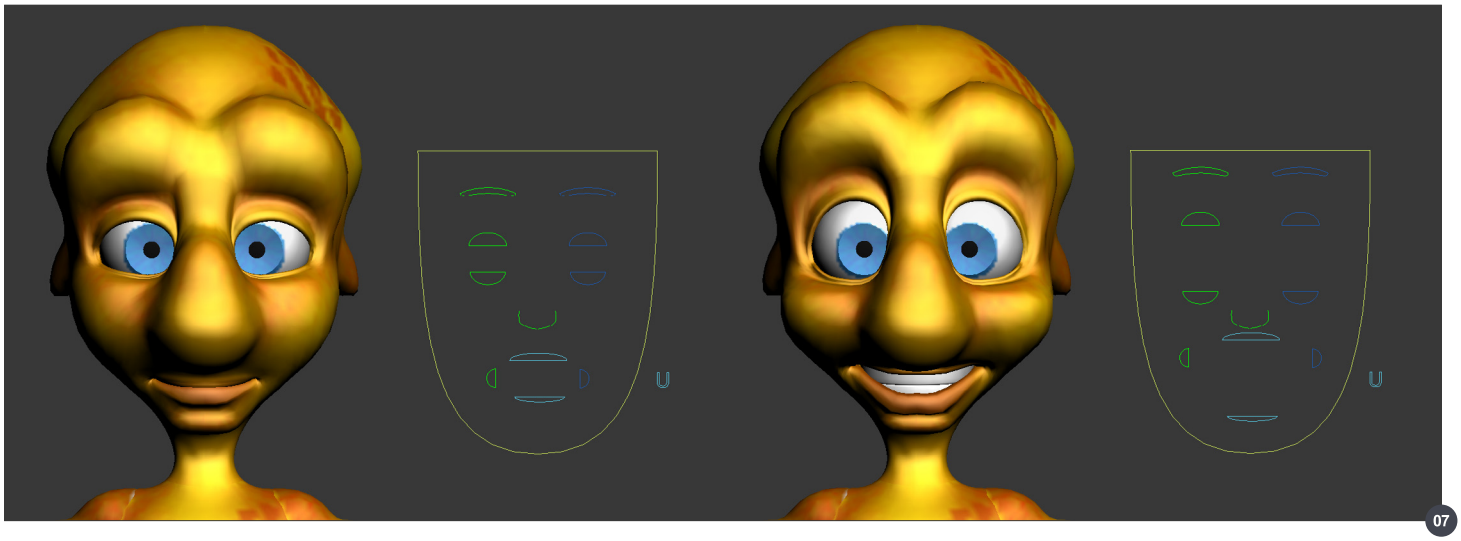
## Creation of Jaw, Teeth and Ear Rig

Open Maxfile: 2.3_Alien_FaceRig_01.max to be at this stage.

1) Create the bones for jaw, ears and tongue as you see them in **Fig.08**. The names for the bones are: Alien_L_ear_SK__BH, Alien_R_ear_SK__BH, Alien_L_Jaw_SK__BH, Alien_L_Tongue01_SK__BH, Alien_C_Tongue02_SK__BH, Alien_C_Tongue03_SK__BH and Alien_C_Tongue04_SK__BH

Open Maxfile: 2.3_Alien_FaceRig_01.max to be at this stage

2) Select the beginning of each chain of bones, jaw, ears and tongue and apply an IMR Point Parent. Names the points: Alien_L_ear _DH, Alien_R_ear __DH, Alien_L_Jaw __DH and Alien_L_Tongue__DH.



07

3) Unhide controls layer and select the control of the head, then apply IMR Point Link. Name the object Alien_C_FaceRig__DH . Then hide the Control layers so there are not too many objects in the viewport.

4) Link Alien_L_ear _DH, Alien_R_ear __DH, Alien_L_Jaw __DH, Alien_L_Tongue__DH to Alien_C_FaceRig__DH.

5) Select all the bones and apply IMR Bone to Box.

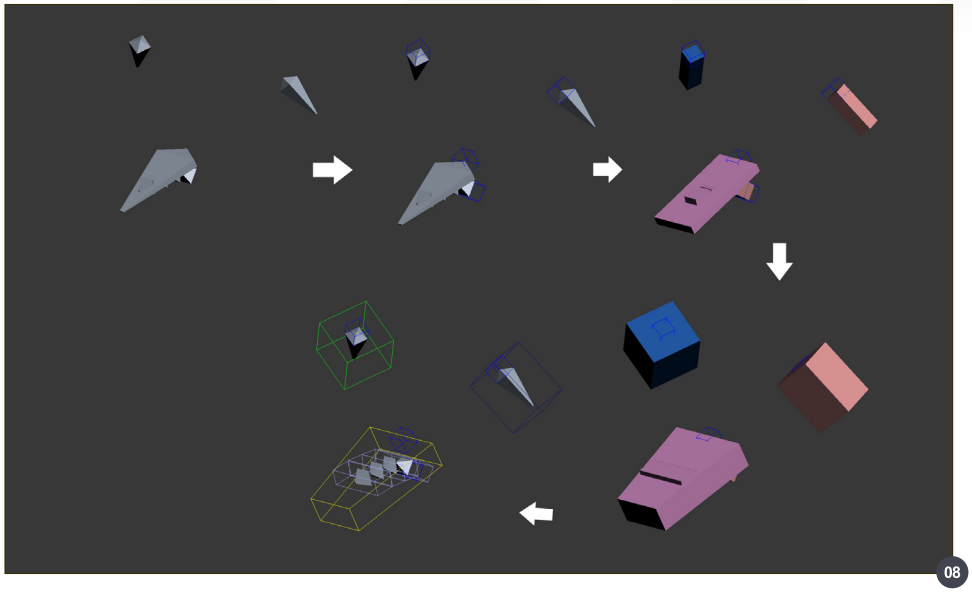
6) Convert the created boxes to edit poly and re-size them until they match the proportions of the face.

7) Select all the boxes and apply the IMR Convert to Shape to convert the boxes in shapes to use as controllers. Rename the spline to: Alien_L_ear __SA, Alien_R_ear___SA, Alien_L_Jaw__SA, Alien_L_Tongue01__SA, Alien_C_Tongue02__SA, Alien_C_Tongue03__SA and Alien_C_Tongue04__SA.

8) Parent the control shapes to Alien_L_ear _DH, Alien_R_ear __DH, Alien_L_Jaw __DH, Alien_L_Tongue__DH

9) Parent the tongue controls in a chain and apply IMR Rotation list to them.

10) Parent the bones of the jaw and ears to their respective control shapes.



08

11) Orientate constrain the tongue bones to the controls of the tongue so that when we rotate the control the bones will follow.

12) Link Alien_L_Tongue__DH to Alien_C_Jaw__SA (**Fig.08**)

Open Maxfile: 2.3_Alien_FaceRig_03.max to be at this stage.

Normally the corners of the mouth move when the jaw goes down, so we're going to imitate that behavior.

13) Create three initial points named: Alien_L_cornerUP__DH, Alien_L_cornerMiddle__DH and Alien_L_CornerBottom__DH. The point will be in the middle top and bottom of the corner area.

14) Link Alien_L_cornerUP__DH and Alien_L_cornerMiddle__DH to Alien_C_FaceRig__DH

15) Link Alien_L_CornerBottom__DH to Alien_C_Jaw__SA.

16) Create a spline with three points named Alien_L_corner__SH and then align each point to Alien_L_cornerUP__DH, Alien_L_cornerMiddle__DH and Alien_L_CornerBottom__DH

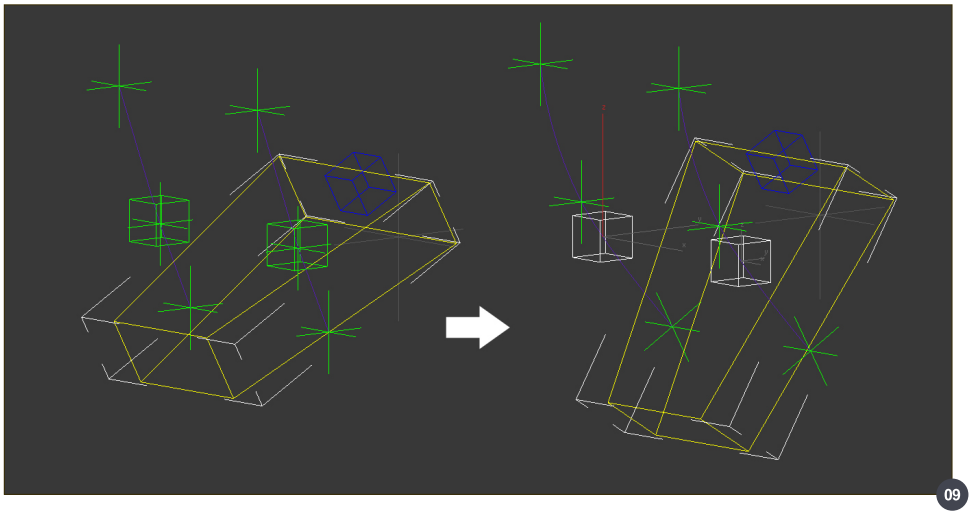
17) Skin spline to the points. Use the Weight tool and Vertex mode to be sure each point of the spline follows the proper point. Do a test by rotating the jaw.

18) Create a point, name it Alien_L_corner_SK__DH and link it to Alien_C_Jaw__SA.

19) Path constrain Alien_L_corner_SK__DH to Alien_L_corner__SH.

20) Be sure you delete the keys of the path constrain percent and adjust the percent until it is in the corner of the mouth.

21) Repeat the same process to create the right side. Use IMR Dialogue Name to easily copy and paste symmetric names (**Fig.09**).



09

Open Maxfile: 2.3_Alien_FaceRig_04.max to be at this stage. We're now going to move on to rigging the teeth.

22) Create a point and name it Alien_C_LowerTeeth__DH.

23) Link Alien_C_LowerTeeth__DH to Alien_C_Jaw__SA

24) Create a box and align it to Alien_C_LowerTeeth__DH. Then convert the box to edit poly, re-size it and apply IMR Box to shape. Finally name the spline Alien_C_LowerTeeth__SA link Alien_C_LowerTeeth__SA to Alien_C_LowerTeeth__DH.

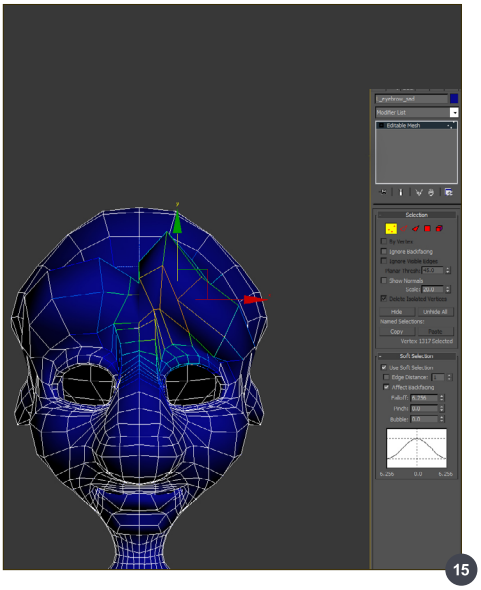
25) Link Alien_C_lowTooth__MF to Alien_C_LowerTeeth__SA (**Fig.10**).

Open Maxfile: 2.3_Alien_FaceRig_05.max to be at this stage.

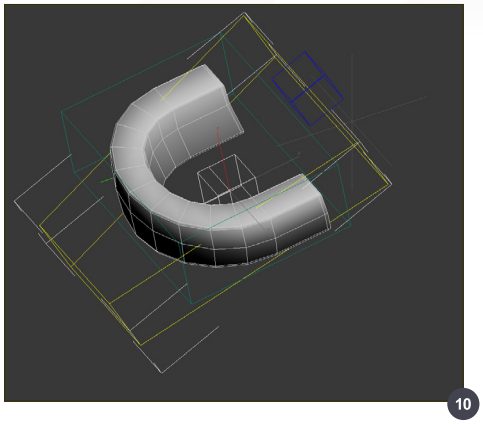
26) Unhide the body Alien_C_body__MF.

27) Add to the skin of Alien_C_body__MF: Alien_L_ear_SK__BH, Alien_R_ear_SK__BH, Alien_L_Jaw_SK__BH, Alien_L_corner_SK__DH and Alien_L_corner_SK__DH.

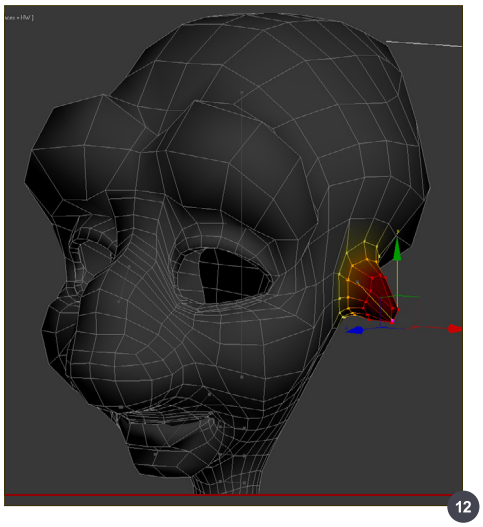
28) Unlink Alien_C_tongue__MF so is not linked to the head anymore and only reacts to skin.



15



10



12

29) Skin Alien_C_tongue__MF to Alien_L_Tongue01_SK__BH, Alien_C_Tongue02_SK__BH, Alien_C_Tongue03_SK__BH and Alien_C_Tongue04_SK__BH.

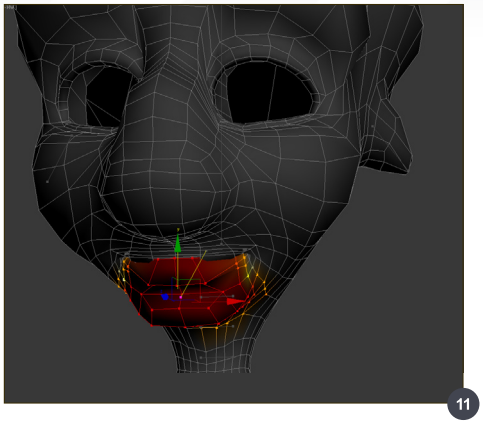
Tweak the skin until the deformations are nice. Try to pose the rig in different poses to see how it reacts (**Fig.11 – 14**).

Open Maxfile: 2.3_Alien_FaceRig_06.max to be at this stage.

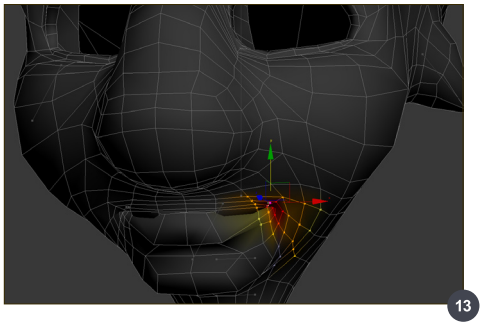
## CREATION OF MORPH TARGETS

We have built the rig for the jaw, teeth and ears, and now we need to model the Morphers for the face rig.

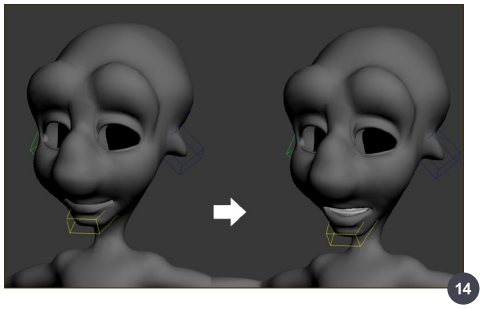
Note: Clone the Alien_C_body__MF as a copy, delete the modifiers and rename it "Neutral". Clone Neutral and modify it. Every time you want to create a new one use Neutral as your starting mesh.



11



13



14

Note: A really useful tool when modelling morph targets is the soft selection tool in Editpoly or Editmesh (**Fig.15**).

Tip: When you have modelled one morph target side there is a good trick to create the other side. Duplicate the neutral mesh twice, name the first copy "morphloader" and the second "skinwarpMesh". In the mesh morphloader apply a morpher modifier to it and then load the mesh you want to create the opposite for. Finally scale the morphloader in X -100.

Skinwarp Skinwarpmesh to morphloader, move the value of the morpher from 0 to 100m, change the values of skinwarp until the mesh follows properly and finally collapse Skinwarpmesh to an editpoly and rename it properly.

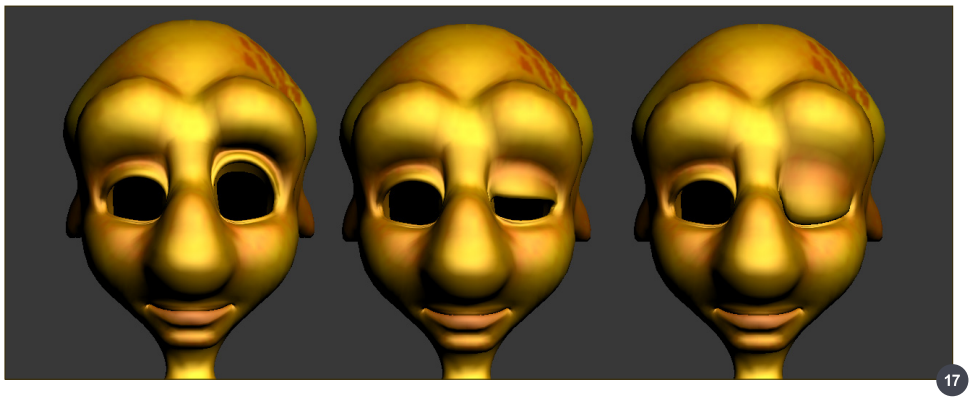


16

This technique allows you to model one side of the face by using skinwarp to do the other.

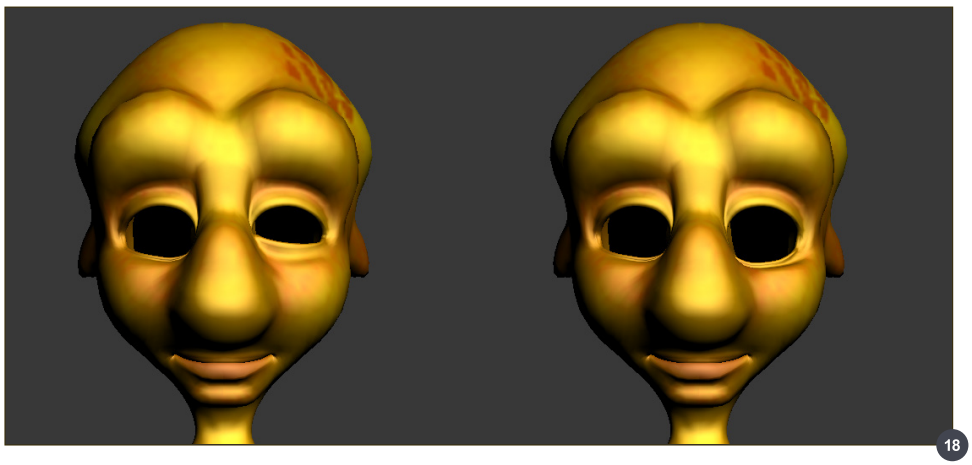
We don't want to model poses or expressions, so we will not model a happy, sad or angry expression. We want to model the specific movement for each area imitating what the muscles in each area will do.

Brows morph targets (**Fig.16**).


17

Upper Eyelid morph targets (**Fig.17**).

Lower Eyelid morph targets (**Fig.18**).


18

Nose morph targets (**Fig.19**).

Lips morph targets (**Fig.20**).


19


20

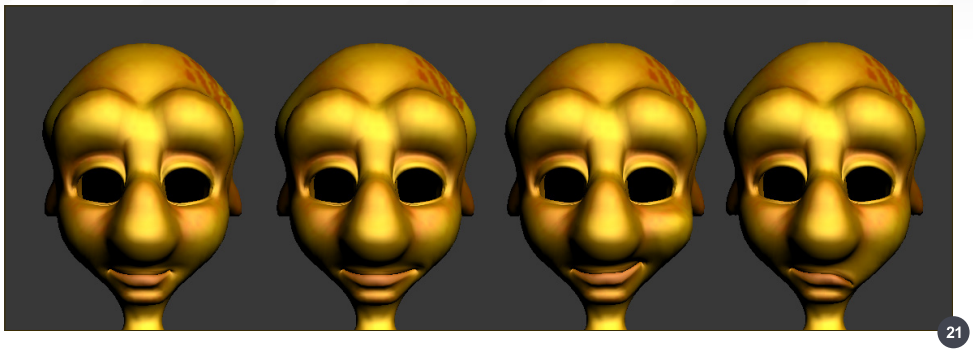
Corner of the mouth morph targets (**Fig.21**).

U shape morph targets (**Fig.22**).

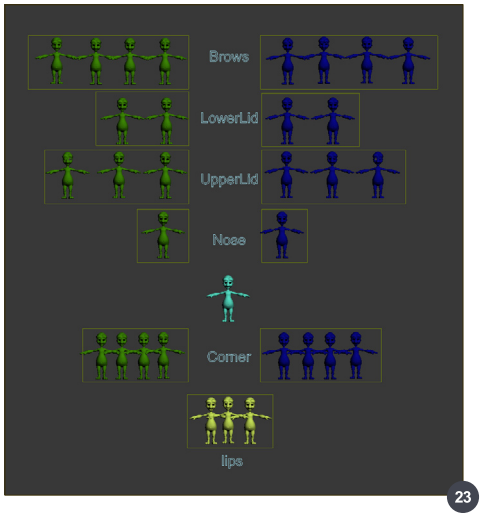
I recommend putting all you morph targets in a layer named Morphs_layer and using a different wirecolor for left, right and centre.

Use rectangles to visualize different areas and move them together easily (**Fig.23**).

Open Maxfile: 2.3_Alien_FaceRig_07.max to be at this stage.


21


22



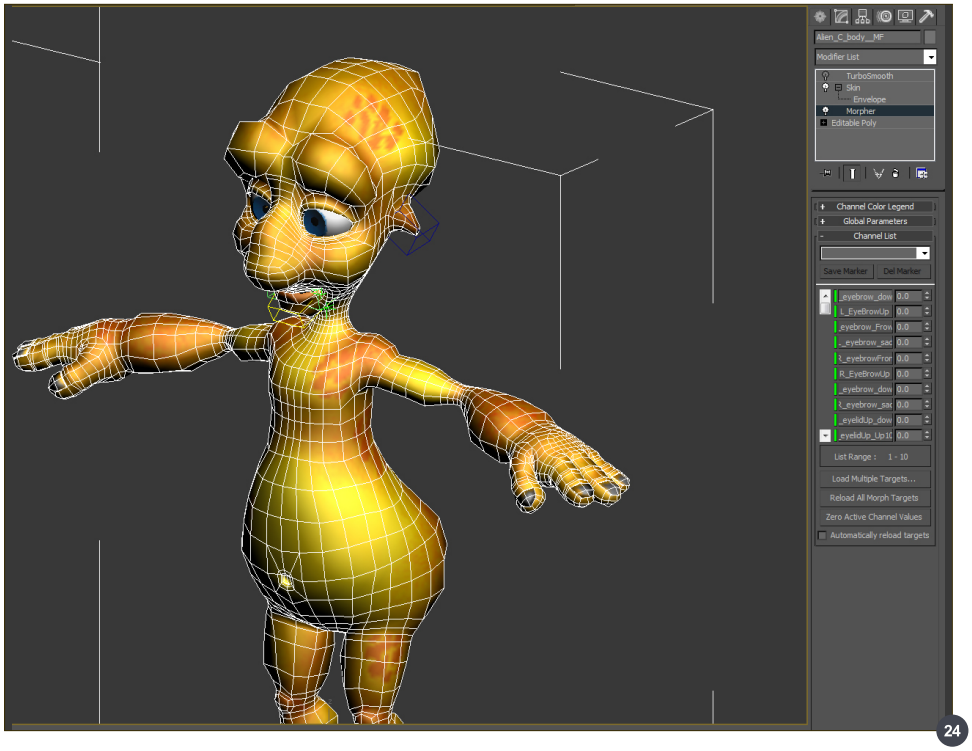
23

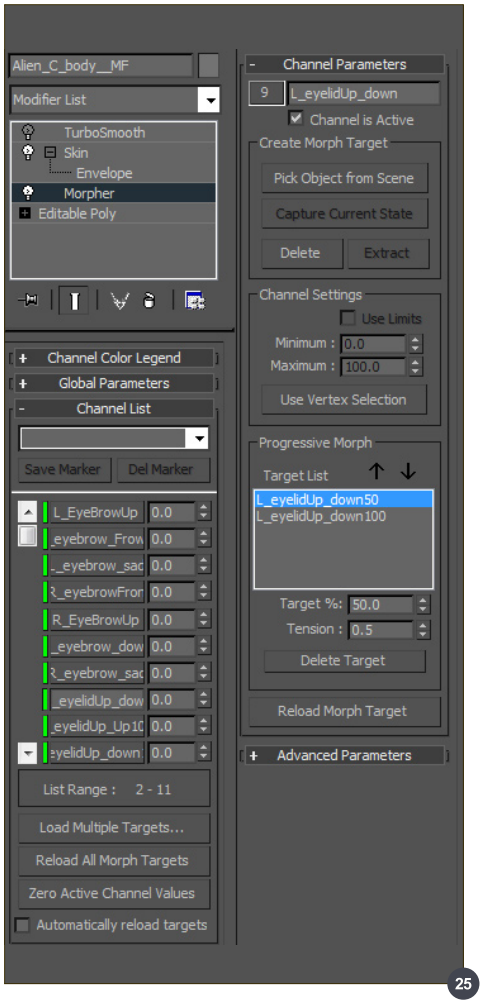
## LOADING THE BLENDSHAPES ON THE RIG

We will add a morpher modifier to the mesh Alien_C_Body__MF. Be sure the morpher goes after the editpoly, and has the skin on top. When you add a morpher modifier to the editpoly, the modifier will go to the top of the stack and you will have to move it to be after the editpoly. If you don't do so it will not work properly.

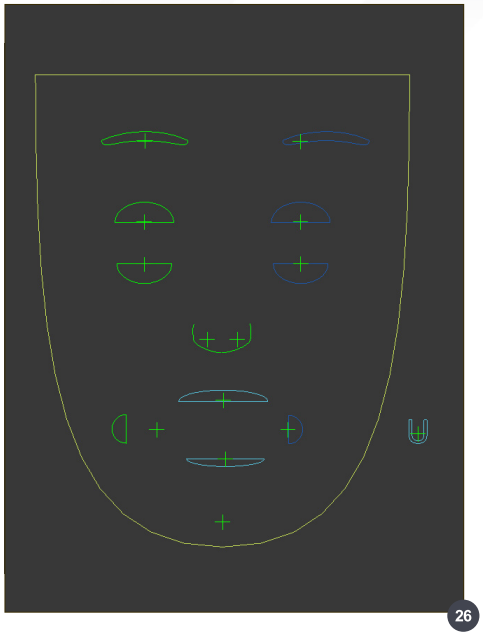
We will load each morph that we created in a channel except for L_eyelidUp_down100 and L_eyelidUp_down50; R_eyelidUp_down100 and R_eyelidUp_down50.

Use one channel for L_eyelidUp_down100 and L_eyelidUp_down50 and another channel for R_eyelidUp_down100 and R_eyelidUp_down50. Load them as progressive targets - one with target value 50 and another with target value 100 (**Fig.24 – 25**).

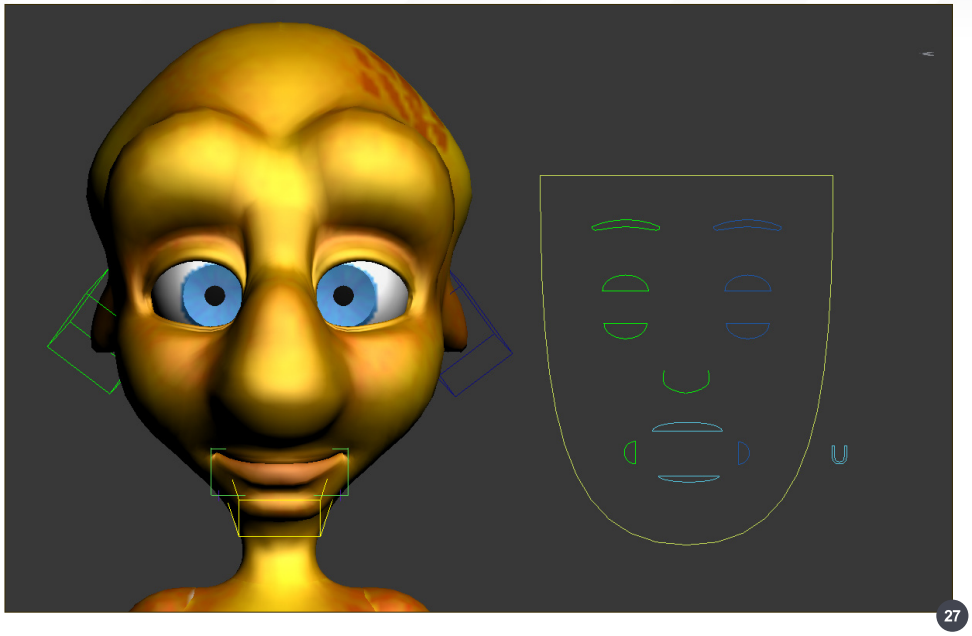

24



25



26



27

Open **Maxfile:** 2.3_Alien_FaceRig_08.max to be at this stage.

## FACE UI AND CONNECTION WITH MORPHER

For the creation of the mask, create icons with splines and create a point parent for them with Apply IMR Point Parent (**Fig.26**). I will not explain the whole process, only mention the main concepts.

1) The names for the controllers will be:
Alien_L_Face_Brow__SA
Alien_L_Face_UpperLid__SA
Alien_L_Face_LowerLid__SA
Alien_L_Face_Nose__SA
Alien_C_Face_lowerLip__SA
Alien_C_Face_UpperLip__SA
Alien_C_Face_U__SA/position Z
Alien_L_Face_Corner__SA
Alien_L_Face_Corner__SA
Alien_R_Face_Brow__SA
Alien_R_Face_UpperLid__SA
Alien_R_Face_LowerLid__SA
Alien_R_Face_Nose__SA
Alien_R_Face_Corner__SA
Alien_R_Face_Corner__SA
Alien_C_Face__SA

2) Apply IMR Point Parent to all the controls. The names of the points will be the same as the controls but changing "__SA" to "__DH"

3) Link all the points for each control of the face to Alien_C_Face__SA and Alien_C_Face__DH to Alien_C_head__SA (**Fig.27**).

Open Maxfile: 2.3_Alien_FaceRig_09.max to be at this stage.

4) The controls are going to be connected through wiring to the morph channels, and we want them to move in values within 1 and -1. The best way is to apply a float limit to the axis we are going to connect, so they stay in-between the desired values.

This is a list of the limits and axes:
Alien_L_Face_Brow__SA, float limit in Z Position, Upperlimit 1 and lowerLimit -1
Alien_L_Face_Brow__SA, float limit in Y Rotation, Upperlimit 45 and lowerLimit -45
Alien_L_Face_UpperLid__SA, float limit in Z Position, Upperlimit 1 and lowerLimit -1
Alien_L_Face_LowerLid__SA, float limit in Z Position, Upperlimit 1 and lowerLimit -1
Alien_L_Face_Nose__SA float limit in Z Position, Upperlimit 1 and lowerLimit 0
Alien_L_Face_Corner__SA, float limit in Z Position, Upperlimit 1 and lowerLimit 0
Alien_L_Face_Corner__SA, float limit in Z Position, Upperlimit 1 and lowerLimit 0
Alien_C_Face_lowerLip__SA float limit in Z Position, Upperlimit 0 and lowerLimit -1
Alien_C_Face_UpperLip__SA, float limit in Z, Upperlimit 1 and lowerLimit 0
Alien_C_Face_U__SA float limit in Z Position, Upperlimit 1 and lowerLimit 0

Note: Use the same limits for the right side controllers.

Once we have the face control UI built, we need to connect the controls to each channel of the morpher modifier.Because we have used float limits in all the controllers of the control objects, we will use this expression:

a = Limited_Controller__Bezier_Float if a >= 0 then 100*a else 0

a= Limited_Controller__Bezier_Float. It allows us to write the expression shorter and use a instead of Limited_Controller__Bezier_Float

If we didn't use a, it will be more difficult to read and easier to make mistakes. For example: if Limited_Controller__Bezier_Float >= 0 then 100* Limited_Controller__Bezier_Float else 0.

We will connect some morphers to the control when the value is positive (if a >= 0 then 100*a

else 0) and another morpher when the value is negative (if a <= 0 then 100*a else 0). This will move brows, eyelids, corners, etc up and down with the same controller, but connected to two different morphs - one to go up and another to go down.

Note: In the following expressions we don't include a = Limited_Controller__Bezier_Float to make it easier to read, but remember to use that line and add the rest of the expression.

To connect the controls with the morpher channels do this Wiring (**Fig.28**).

Brow connections:
Connect morph L_Eyebrow_down with Alien_L_Face_Brow__SA/ position Z with the expression: if a <= 0 then -100*a else 0

Connect morph L_EyebrowUp with Alien_L_Face_Brow__SA /position Z with expression: if a >= 0 then 100*a else 0

Connect morph L_eyebrow_Frow with Alien_L_Face_Brow__SA / rotationY with expression: if a <=0 then -130*a else 0

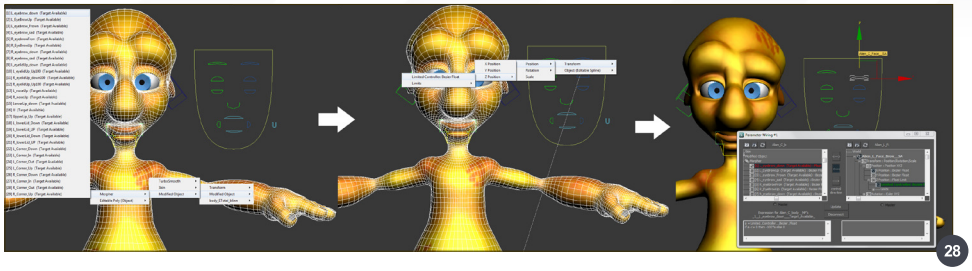
Connect morph L_eyebrow_sad with Alien_L_Face_Brow__SA / rotationY with expression: if a >=0 then 130*a else 0

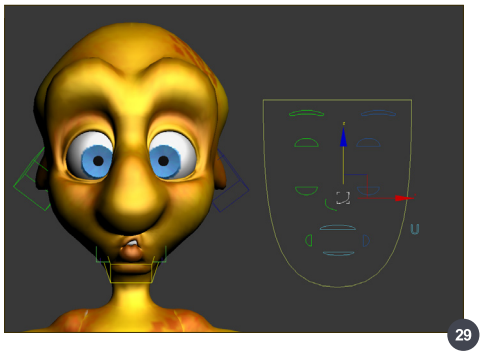
Upperlid:
Connect morph L_eyelidUp_down with Alien_L_Face_UpperLid__SA / position Z with expression: if a <= 0 then -100*a else 0

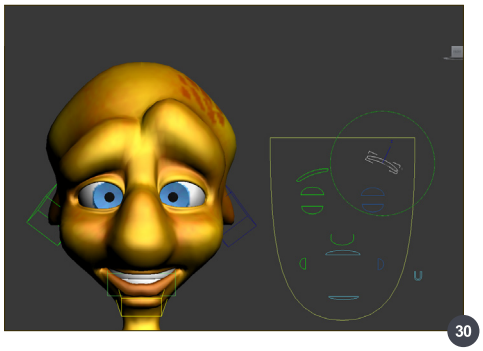
Connect morph L_ eyelidUp_Up with Alien_L_Face_UpperLid__SA /position Z with expression: if a >= 0 then 100*a else 0

LowerLid connections:
Connect morph L_lowerLid_Down with Alien_L_Face_LowerLid__SA/position Z with expression: if a <= 0 then -100*a else 0

Connect morph L_lowerLid_Up with Alien_L_Face_LowerLid__SA/position Z with expression: if a >= 0 then 100*a else 0


28


29


30

Nose:
Connect morph L_noseUp with Alien_L_Face_Nose__SA/position Z with expression: if a >= 0 then 100*a else 0

Lips connections:
Connect morph LowerLip_down with Alien_C_Face_lowerLip__SA /position Z with expression: if a <= 0 then -100*a else 0

Connect morph LowerLip_down with Alien_C_Face_UpperLip__SA/position Z with expression: if a >= 0 then 100*a else 0

U connection:
Connect morph U with Alien_C_Face_U__SA/ position Z with expression: if a >= 0 then 100*a else 0

Corners of the mouth connections:
Connect morpher L_Corner_Up with Alien_L_Face_Corner__SA /position Z with expression: if a >= 0 then 100*a else 0

Connect morpher L_Corner_Down with Alien_L_Face_Corner__SA /position Z with expression: if a <= 0 then -100*a else 0

Connect morpher L_Corner_Out with Alien_L_Face_Corner__SA /position X with expression: if a >= 0 then 100*a else 0

Connect morpher L_Corner_In with Alien_L_Face_Corner__SA /position X with expression: if a <= 0 then -100*a else 0

Do the same steps for the right side to make a similar expression to the left side; most of them will work correctly.

You will have to do a few changes in the morphs connected to controls Alien_R_Face_Brow__SA /Y rotation and Alien_R_Face_Corner__SA /X Position.

Play with the facial mask rig and you will realize how intuitive is to work with it, and how we easily achieved the pose (**Fig.29 – 30**).

Open Maxfile: 2.3_Alien_FaceRig_10.max to be at this stage.

## CHECKLIST FOR FACE RIG

Before we finish the rig it's good to do a checklist for the rigging. There are always too many things to remember to check. Using this checklist will make things easier.

1- Proper names

2- Proper names for the layers
3- Objects in their correct layers
4- No object in layer 0
5- No duplicates names
6- Move the master and check all the meshes follow correctly
7- Controls have correct rotation orders
8- Limited keyability in controls and proper locks
9- Rotate and move the rig with autokey to check everything is okay
10- Delete keys and leave a clean version for animators
11- Be sure IMR keytools zero all work properly

We will not look at all the points above, only the most important.

3 - Objects in their correct layers

Remember to use " *__*H" to move objects to the hidden layers, "*__SA" to move objects to the controls layers .

8 - Limited keyability in controls and proper locks

Alien_L_Face_Brow__SA is keyable in positionZ/floatlimit and rotationY/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_L_Face_UpperLid__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.

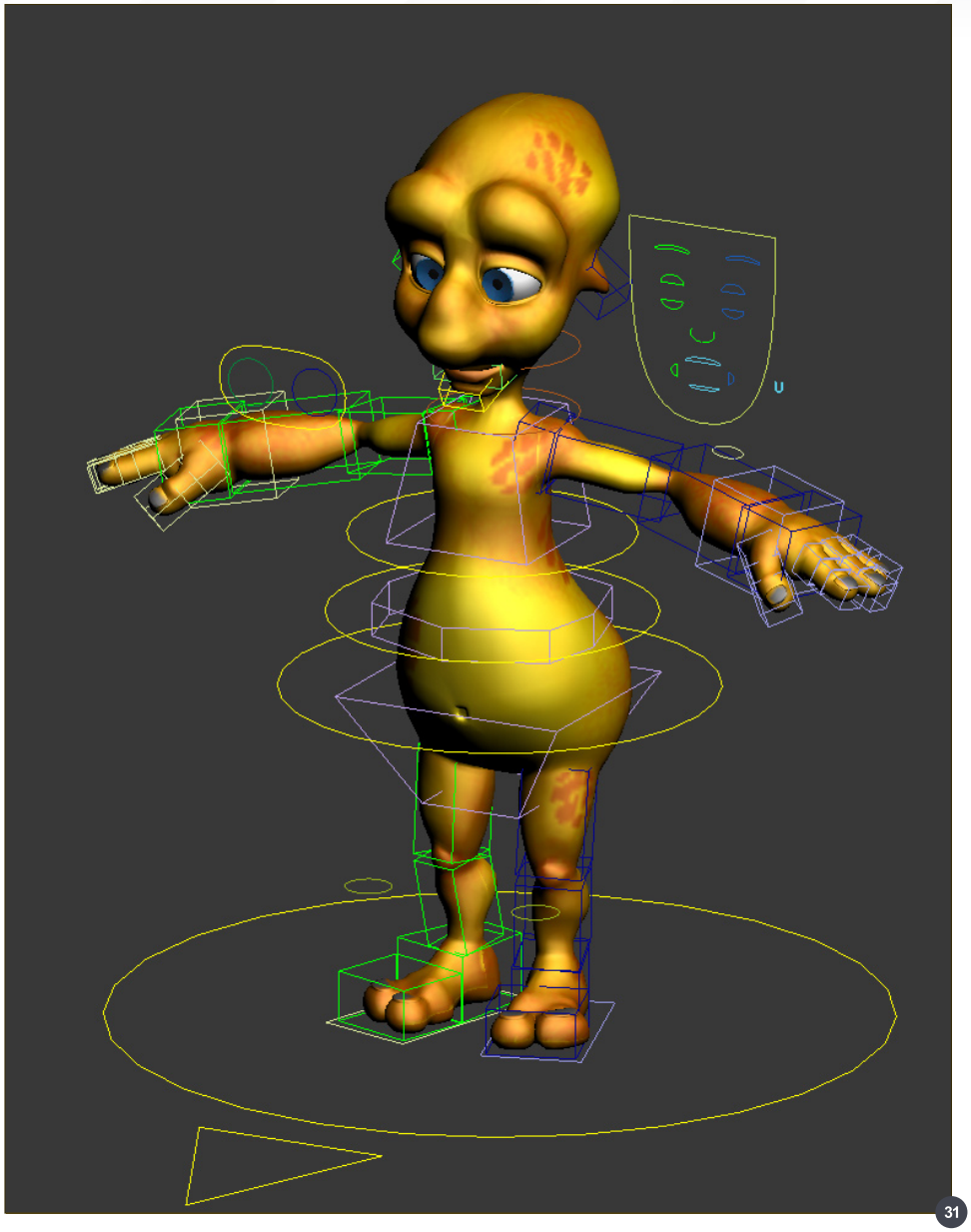
Alien_L_Face_LowerLid__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_L_Face_Nose__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_L_Face_Corner__SA is keyable in positionZ/floatlimit and positionX/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_C_Face_lowerLip__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_C_Face_UpperLip__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.



31

Alien_C_Face_U__SA is keyable in positionZ/floatlimit, and locked in the other axis of position, rotation and scale.

Alien_C_Face__SA is not keyable but has not been locked so it can be move around but not be animated.

Note: For the right side controllers of the face mask the same are keyable or locked as the left side controllers.

Alien_C_Jaw__SA is keyable in rotation/animation, position/animation and locked in scale.

Alien_L_ear__SA is keyable in rotation and locked in position and scale.

Alien_R_ear__SA is keyable in rotation and locked in position and scale.

Alien_C_LowerTeeth__SA is keyable in position rotation and scale.

Alien_C_Tongue01__SA is keyable in position and rotation, and locked in scale.

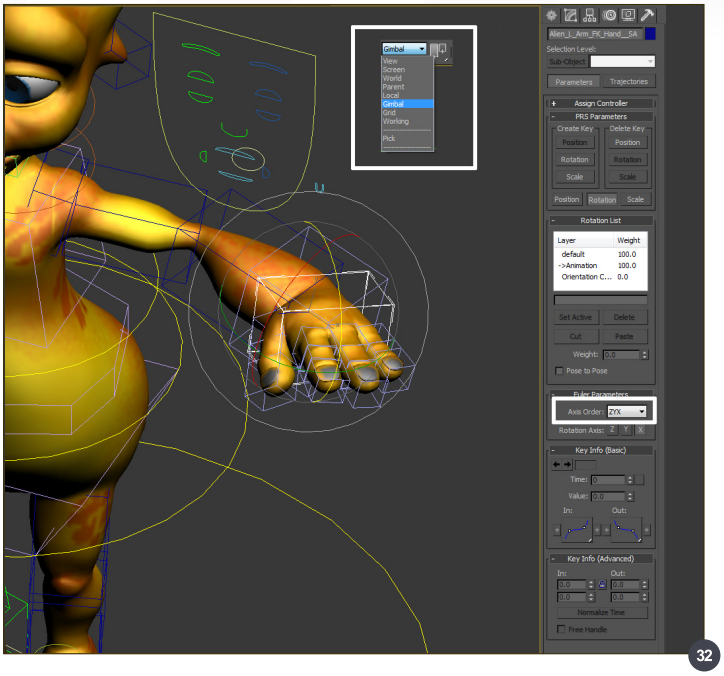
Alien_C_Tongue02__SA, Alien_C_Tongue03__SA, Alien_C_Tongue04__SA are keyable in rotation/animation and locked in position and scale.

11 - Be sure IMR keytools zero all work properly

Open Maxfile: 2.3_Alien_FaceRig_11.max to be at this stage (**Fig.31**).

## Axis Order For the Controls

Now we have finished the setup of the rig we will have to change a few axis in order to make the animator's life easier when they rotate the controls and when they edit the curves in the Trackview. We will do the changes in axis order in the motion panel and remember to be in gimbal to test what is the best axis order. We will test the best combination to have as much gimbal lock as possible (**Fig.32**).



32

We will change the next rotation axis orders:

1) Alien_L_Arm_FK_Upper__SA and Alien_L_Arm_FK_Upper__SA with rotation axis order ZXY.

2) Alien_L_Arm_FK_Hand__SA and Alien_R_Arm_FK_Hand__SA axis with rotation axis order ZXY.

3) Alien_R_Fingers_Index01__SA, Alien_R_Fingers_Middle01__SA , Alien_R_Fingers_Little 01__SA Alien_L_Fingers_Index01__SA, Alien_L_Fingers_Middle01__SA , Alien_L_Fingers_Little 01__SA with rotation axis order ZYX.

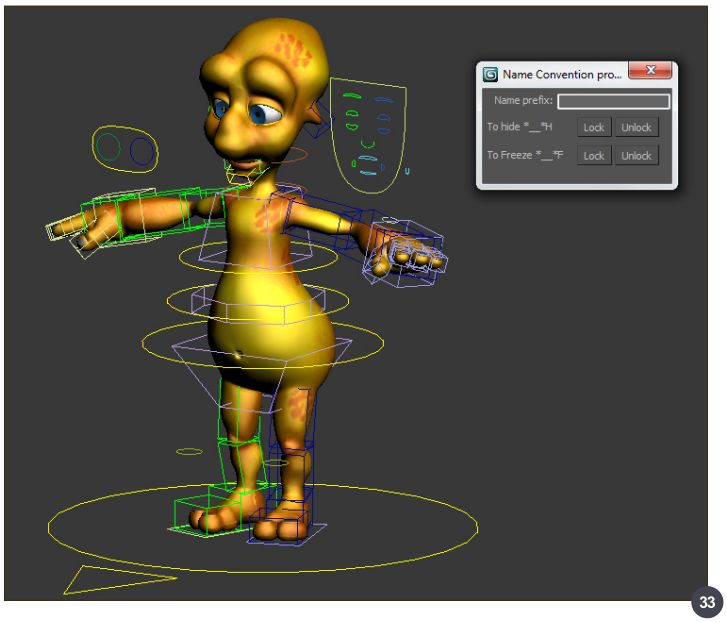
4) Alien_L_Fingers_Thumb01__SA and Alien_R_Fingers_Thumb01__SA with rotation axis order ZYX.

5) Alien_L_leg_FK_Thigh__SA and Alien_R_leg_FK_Thigh__SA with rotation axis order ZYX.

6) Alien_L_Leg_FK_Foot__SA and Alien_R_Leg_FK_Foot__SA with rotation axis order ZYX.

7) Alien_C_Jaw__SA with rotation axis order ZYX.

Open Maxfile: 2.3_Alien_FaceRig_12.max to be at this stage.



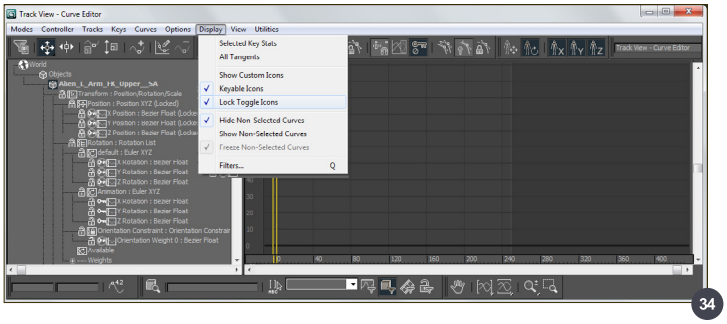

33

## Preparing the Rig for the Animators

The last thing to do is to protect the objects in the hidden, mesh and proxy layers from being transformed, selected or animated.

We can do this with locks and freeze. To animate them we can setup the controllers to not be keyable.

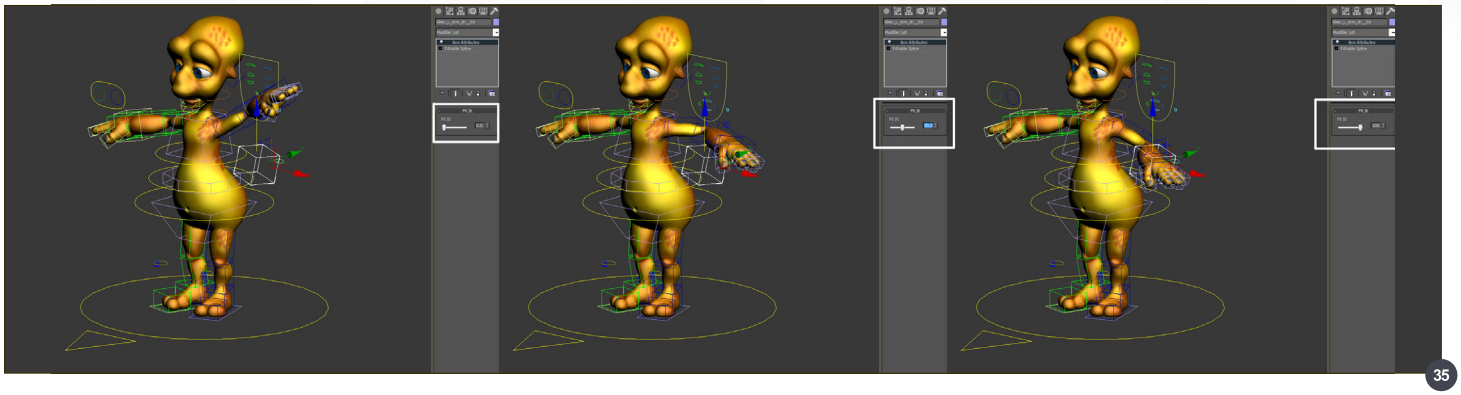
Doing one object after the other will take a really long time, so we have an IMR script to help do the job. Run IMR_AutoProperties and a window will appear, choose to hide and to freeze lock, everything will be locked automatically. If you want to unlock everything use the unlock button; this is good when you need to modify the rig (**Fig.33**).




34

Note: Please be sure you are using the latest version of IMR_AutoProperties.mcr to avoid problems. Use the one that comes with this lesson.

Note: If you are using Max 2010 you could use lock in the trackview. This is only available since 2010 and will totally protect the controller even



35

for actions in the maxscript. If you want to secure your rig you could go for all the controls and lock the controllers that are not keyable. A good maxscript exercise will be to modify IMR_AutoProperties.mcr to do locks in Trackview too (**Fig.34**).

When we have locked the objects the last thing we need to do before we give the file to the animators is delete the objects in the layer Morphs_ layer and delete the layer itself. Morph targets need to be in the scene if you want to modify them. You usually use them when you are tweaking the rig but when we pass it on to the animator they don't need them so it is better to erase them.

Be sure to delete all the selection sets we have created when we were working. With all this done we will have a clean rig to give to the animators ready for production.

Open Maxfile: 2.3_Alien_FaceRig_13.max to be at this stage.

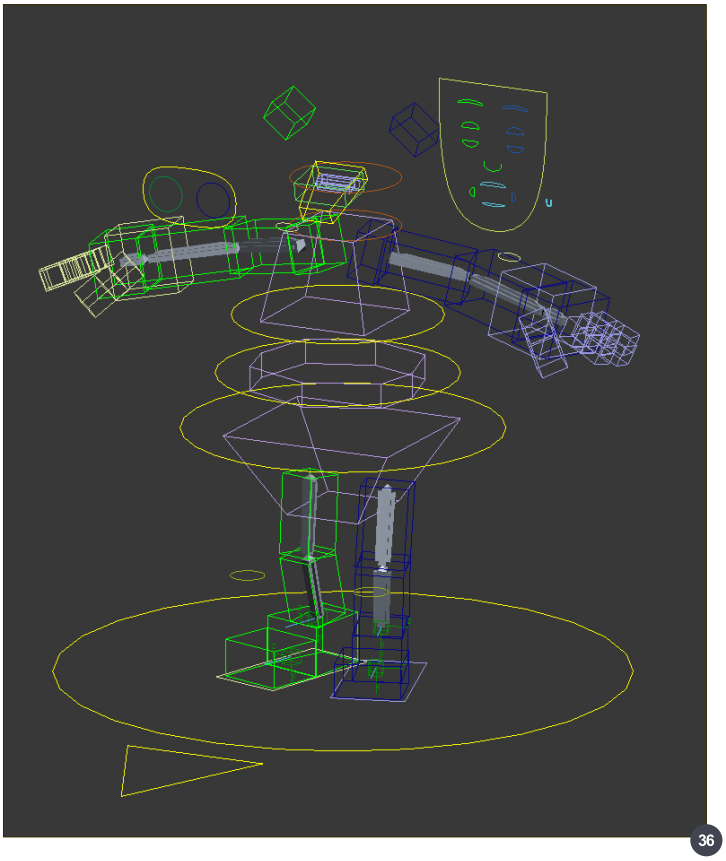
## MAXSCRIPT TOOL MATCH FK TO IK OR VICE VERSA

As we have said before maxscript is a tool that helps us to automate repetitive tasks. To illustrate this we are going to match FK to IK. This is normally one of the first tools that you want to do for a rig.

On the rig we have the parameter FKIK and if we change FKIK in between 0 and 100 it will move from FK to IK.

This is okay in a lot of situations, but sometimes the animator wants to change the FK to IK or vice versa and get the arm in the same place. Normally the arm will change position when we change the FKIK. The animator can try to do a good match by hand but it can be quite a tedious process and is never perfect.

We are going to show you how to do a match by hand, and later we will automate the process in a script (**Fig.35**).



36

## MATCH BY HAND

To be able to do the match between FK and IK we will need to unhide some objects from the hidden layer. We will use this object to align the control to them when we do the match.

Before we start working we will run the IMR_AutoProperties.mcr and unlock frozen and hidden items so we can select and manipulate objects.

1) For the arm, unhide the following from the hidden layer: Alien_L_Arm_IK_Upper__BH, Alien_L_Arm_IK_Fore__BH, Alien_L_Arm_IK_Hand__BH, Alien_L_Arm_IK_Upper__BH, Alien_L_Arm_IK_Fore__BH and Alien_L_Arm_IK_Hand__BH.

2) For the leg, unhide the following from the hidden layer: Alien_L_leg_IK_Thigh__BH, Alien_L_leg_IK_Calf__BH, Alien_L_Leg_IK_Foot_LookAt__

DH, Alien_L_Leg_IK_Toes_LookAt__DH, Alien_R_leg_IK_Thigh__BH, Alien_R_leg_IK_Calf__BH, Alien_R_Leg_IK_Foot_LookAt__DH and Alien_R_Leg_IK_Toes_LookAt__DH (**Fig.36**).

Open Maxfile: 2.3_Alien_FaceRig_14.max to be at this stage

For the alignment of the IK of the leg and arm we will need to create a few points to help on the match.

3) Select Alien_L_Arm_FK_Upper__SA and Alien_L_Arm_FK_Upper__SA and apply an IMR Create Blend. Name the point Alien_L_Arm_matchBlend__DH.

4) Select Alien_L_Arm_FK_Upper__SA and apply a IMR Point Linked. Name the point Alien_L_Arm_matchSwivel__DH

5) Move the point Alien_L_Arm_matchSwivel__DH in position z -10 units.

6) Select Alien_L_leg_FK_Thigh__SA and Alien_L_leg_FK_Calf__SA and apply an IMR Create Blend. Name the point Alien_L_leg_MatchBlend__DH.

7) Select Alien_L_leg_MatchBlend__DH and apply an IMR Point Linked. Name the point Alien_L_Leg_matchSwivel__DH.

8) Move the point Alien_L_Leg_matchSwivel__DH in position Y -10 units.

9) Select Alien_L_Leg_IK__SA and apply a IMR Point Align. Name the point Alien_L_Leg_matchFoot__DH.

10) Link Alien_L_Leg_matchFoot__DH to Alien_L_Leg_FK_Foot__SA

11) Repeat the same process for creating the right side arm and leg: use IMR Dialogue Name to copy and paste symmetrical names (**Fig.37**).

Open Maxfile: 2.3_Alien_FaceRig_15.max to be at this stage

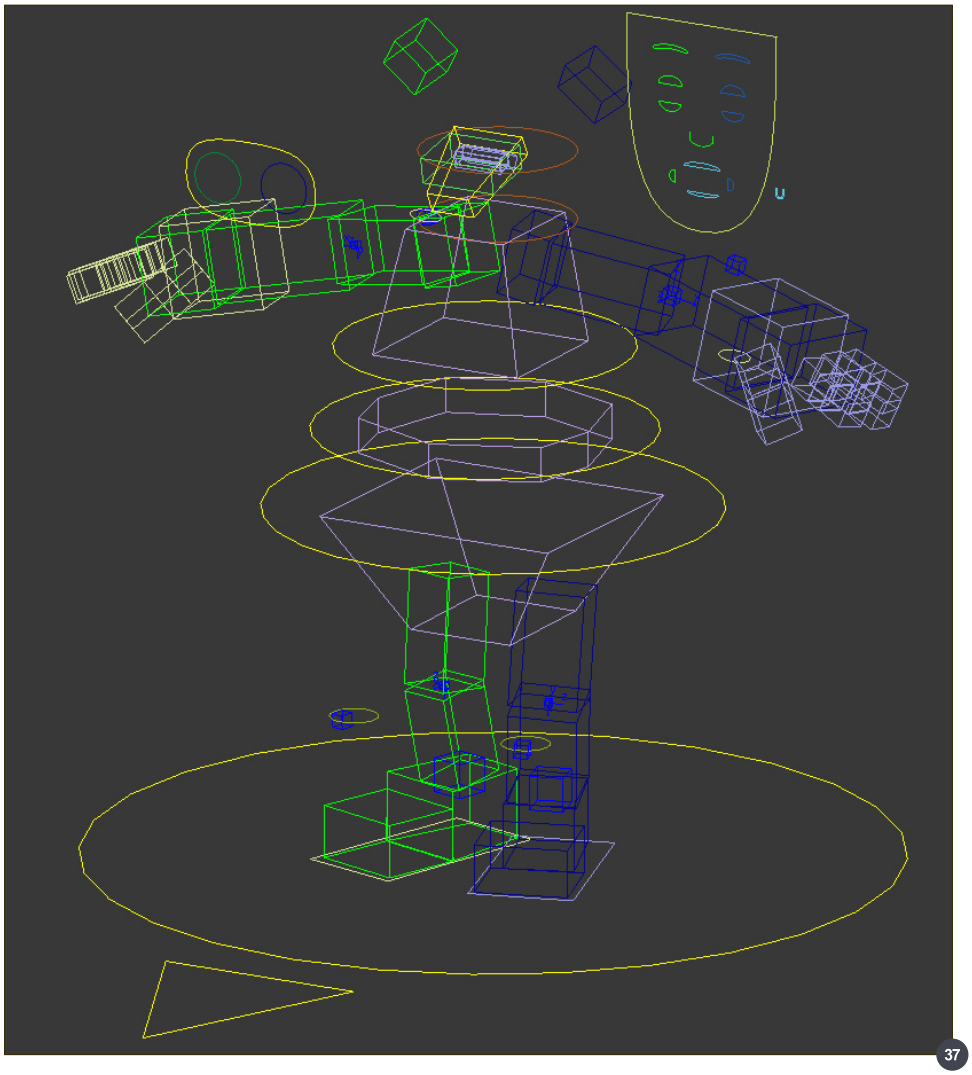
12) Now we have created all the helpers we can match the FK to the IK by hand aligning a few objects. Move and rotate the FK and IK controls for the arms and legs.

To align the FK arm to the IK arm we need to:
Align Alien_L_Arm_FK_Upper__SA on position and rotation to Alien_L_Arm_IK_Upper__BH.
Align Alien_L_Arm_FK_Fore__SA on position and rotation to Alien_L_Arm_IK_Fore__BH.
Align Alien_L_Arm_FK_Hand__SA on position and rotation to Alien_L_Arm_IK_Hand__BH.

To align the FK arm to the IK arm we need to:
Align Alien_L_Arm_FK_Fore__SA on position and rotation to Alien_L_Arm_IK_Fore__BH.
Align Alien_L_Arm_FK_Hand__SA on position to Alien_L_Arm_IK_Hand__BH.

To align the FK leg to the IK leg we need to:
Align Alien_L_leg_FK_Thigh__SA on position and rotation to Alien_L_leg_IK_Thigh__BH.
Align Alien_L_leg_FK_Calf__SA on position and rotation to Alien_L_leg_IK_Calf__BH.
Align Alien_L_Leg_FK_Foot__SA on position and rotation to ALien_L_Leg_IK_Foot_LookAt__DH.
Align Alien_L_leg_FK_toes__SA on position and rotation to Alien_L_Leg_IK_Toes_LookAt__DH.

To align the FK leg to the IK leg we need to:
Align Alien_L_Leg_IK__SA on position and rotation to Alien_L_Leg_matchFoot__DH.
Align Alien_L_leg_IK_swivel__SA on position to Alien_L_Leg_matcHSwivel__DH.



37

Doing this by hand each time will become tedious so we will do this by scripting.

Note: Apply the IMR Key tools controls to reset the rig to default after finishing testing.

## ARM MATCH FK TO IK AND VICE VERSA

1) This code will match the FK to the IK:

$Alien_L_Arm_FK_Upper__SA.transform = $Alien_L_Arm_IK_Upper__BH.transform
$Alien_L_Arm_FK_Fore__SA.transform = $Alien_L_Arm_IK_Fore__BH.transform
$Alien_L_Arm_FK_Hand__SA.transform = $Alien_L_Arm_IK_Hand__BH.transform

2) This code will match the FK to the IK:

$Alien_L_Arm_IK__SA.transform = $Alien_L_Arm_FK_Hand__SA.transform
$Alien_L_Arm_IK_swivel__SA.position = $Alien_L_Arm_matchHSwivel__DH.position

3) Evaluating the code each time we want to match is not the best solution, so what we will do is create a custom attribute with two buttons with this code inside.

```
File Edit Search View Tools Options Language Windows Help
1L_ArmMatch_Attributes_ApplyCA.ms
1  LArmData = attributes LeftArmMatch_attributes
2  (
3  --define the rollout  Match
4  Rollout Params "Match"
5      (
6          button FktoIK_bt "FK to IK" width:100
7          button IktoFK_bt "IK to FK" width:100
8          -- button events
9          on FktoIK_bt pressed do-- when  we press the button
10         (
11             $Alien_L_Arm_FK_Upper__SA.transform  = $Alien_L_Arm_IK_Upper__BH.transform
12             $Alien_L_Arm_FK_Fore__SA.transform  = $Alien_L_Arm_IK_Fore__BH.transform
13             $Alien_L_Arm_FK_Hand__SA.transform  = $Alien_L_Arm_IK_Hand__BH.transform
14         )
15         --
16         on IktoFK_bt pressed do -- when  we press the button
17         (
18             $Alien_L_Arm_IK__SA.transform  = $Alien_L_Arm_FK_Hand__SA.transform
19             $Alien_L_Arm_IK_swivel__SA.position  = $Alien_L_Arm_matchHSwivel__DH.position
20         )
21     )
22
23 )
24
25 -- add the custom atribute to the selected object in the first modifier
26 if selection.count == 1 then
27 (
28 custAttributes.add $.modifiers[1] LArmData
29 )
30
31 gc()
```

38

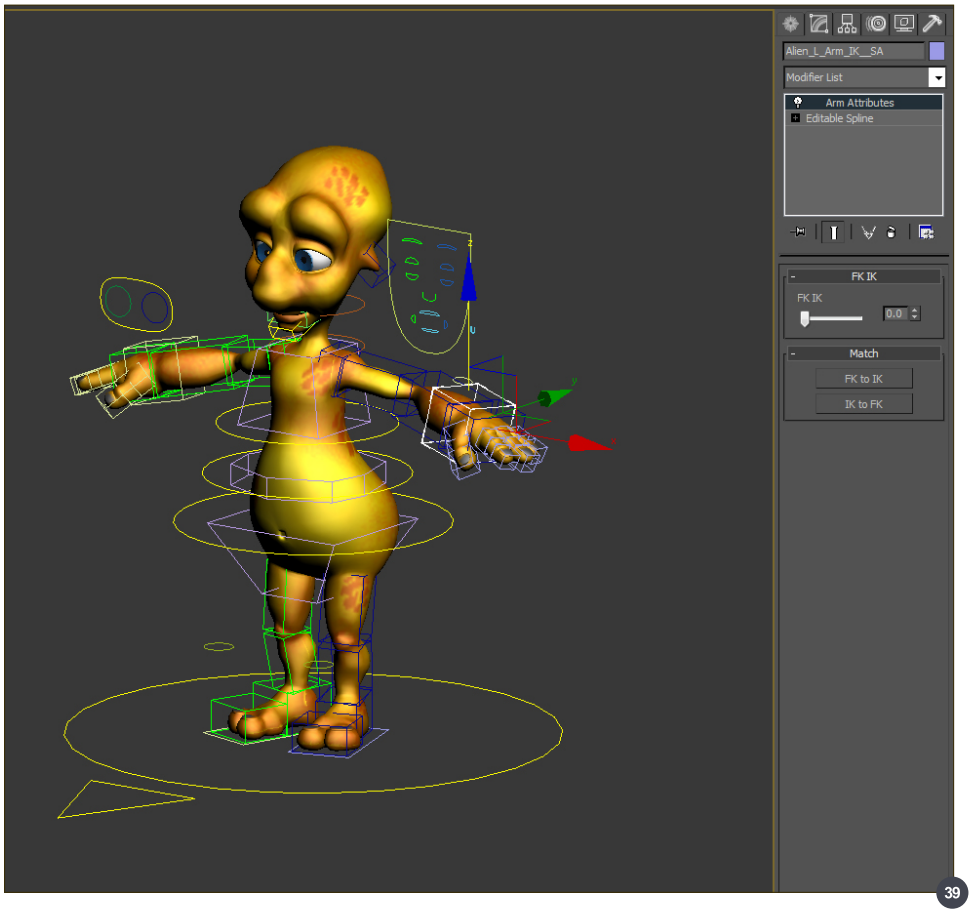
Note: The maxscripts are created so it will be easier to you to understand the script properly.

4) Open the maxscript L_ArmMatch_Attributes_ApplyCA.ms, select Alien_L_Arm_IK__SA and evaluate the script.

5) Open the maxscript R_ArmMatch_Attributes_ApplyCA.ms, select Alien_R_Arm_IK__SA and evaluate the script (**Fig.38**).

6) Move the IK arm and rotate the FK arms, later try the buttons in the modifiers panel to see how the FK moves to the IK or the IK moves to the FK (**Fig.39**).

Note: Apply the IMR Key tools control to reset the rig to default after finishing testing.




39

## LEG MATCH FK TO IK AND VICE VERSA

As with the arm, what we did previously by hand we can now do by code.

1) Using this code will match the FK leg to the IK:

$Alien_L_leg_FK_Thigh__SA.transform = $Alien_L_leg_IK_Thigh__BH.transform
$Alien_L_leg_FK_Calf__SA.transform = $Alien_L_leg_IK_Calf__BH.transform
$Alien_L_Leg_FK_Foot__SA.transform = $Alien_L_Leg_IK_Foot_LookAt__DH.transform
$Alien_L_leg_FK_toes__SA.transform = $ALien_L_Leg_IK_Toes_LookAt__DH.transform

2) Using this code will match the leg FK to the leg IK:

$Alien_L_Leg_IK__SA.transform = $Alien_L_Leg_matchFoot__DH.transform
$Alien_L_leg_IK_swivel__SA.position = $Alien_L_Leg_matchHSwivel__DH.position

File Edit Search View Tools Options Language Windows Help

1 L_LegMatch_Attributes_ApplyCA.ms

```
LLegData = attributes LeftLegMatch_attributes
(
--define the rollout  Match
Rollout Params "Match"
   (
      button FktoIK_bt "FK to IK" width:100
      button IktoFK_bt "IK to FK" width:100
      -- button events
      on FktoIK_bt pressed do-- when  we press the button
      (
         $Alien_L_leg_FK_Thigh__SA.transform  = $Alien_L_leg_IK_Thigh__BH.transform
         $Alien_L_leg_FK_Calf__SA.transform  = $Alien_L_leg_IK_Calf__BH.transform
         $Alien_L_Leg_FK_Foot__SA.transform  = $ALien_L_Leg_IK_Foot_LookAt__DH.transform
         $Alien_L_leg_FK_toes__SA.transform  = $ALien_L_Leg_IK_Toes_LookAt__DH.transform
      )
      --
      on IktoFK_bt pressed do -- when  we press the button
      (
         $ALien_L_Leg_IK__SA.transform  = $Alien_L_Leg_matchFoot__DH.transform
         $Alien_L_leg_IK_swivel__SA.position  = $Alien_L_Leg_matcHSwivel__DH.position
      )
   )

)

-- add the custom atribute to the selected object in the first modifier
if selection.count == 1 then
(
custAttributes.add $.modifiers[1] LLegData
)

gc()
```

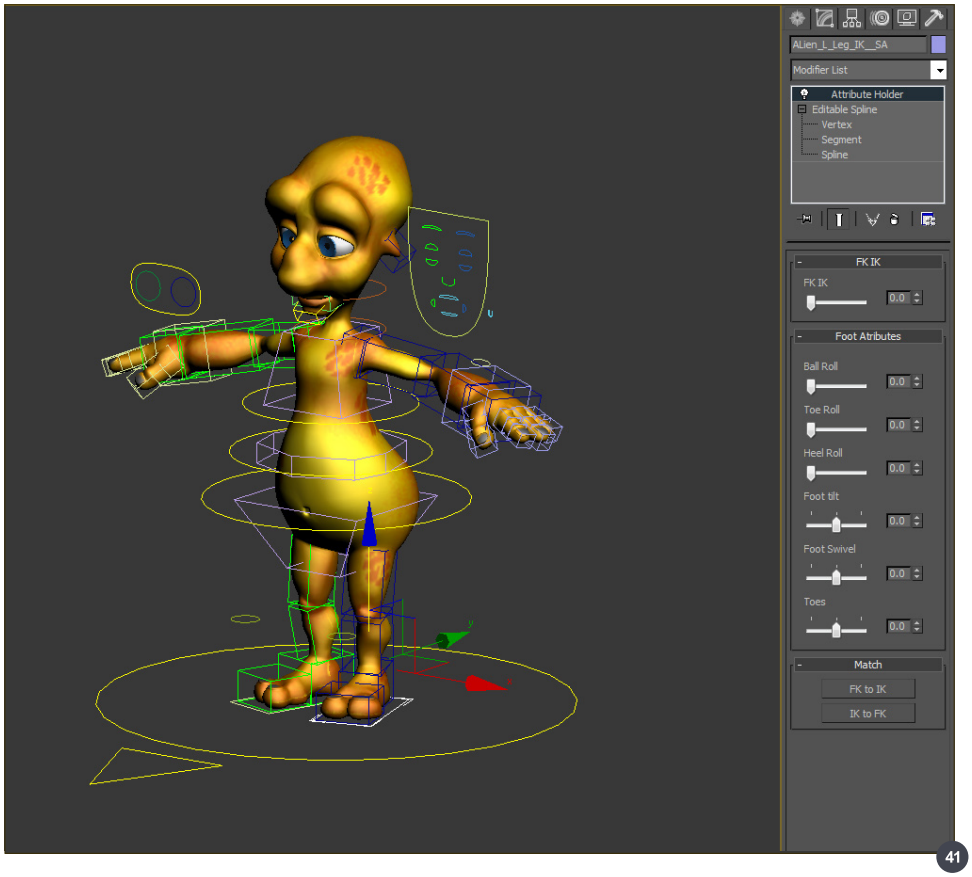
40

3) Evaluating the code each time we want to match these up is not the best solution, so what we will do is create a custom attribute with two buttons and this code inside.

Note: The maxscripts are created so it will be easier for you to understand the script properly.

4) Open the maxscript L_LegMatch_Attributes_ApplyCA.ms, select ALien_L_Leg_IK__SA and evaluate the script.

5) Open the maxscript R_LegMatch_Attributes_ApplyCA.ms, select ALien_R_Leg_IK__SA and evaluate the script (**Fig.40**).




41

6) Move the IK leg and rotate the FK legs, later try the buttons in the modifiers panel to see how the FK moves to the IK or the IK moves to the FK (**Fig.41**).

Note: Apply to the controls IMR Key tools to reset the rig to default after finishing testing

## TURBOSMOOTH ON AND OFF

Another thing that is quite useful is to be able to switch on and off the Turbosmooth modifier without having to select the meshes and do it through the modifier panel. So we will have two buttons in the main control to switch Turbosmooth on and off in all the meshes.

If you try this line in the listener, $Alien_C_body__MF.modifiers[1].enabled = False, it will

switch the Turbosmooth off Alien_C_body__MF, and $Alien_C_body__MF.modifiers[1].enabled = True without putting it back to on.

We will use a similar code in the proper script.

Note: I did forgot to add a Turbosmooth to Alien_C_upTooth__MF, so please add a modifier to it.

1) Add an attribute holder to Alien_C_master__SA.

2) Open the maxscript TS_Attributes_ApplyCA.ms select Alien_C_master__SA and evaluate the script (**Fig.42**).

3) Now we have almost finished! Move the object in layer 0 to the hidden layer.

4) Apply IMR Autoproperties and lock.

5) Try the buttons in the modifiers panel to see how the Turbosmooth turns on or off (**Fig.43**).

Open Maxfile: 2.3_Alien_FaceRig_17.max to be at this stage

```
TSData = attributes TS_attributes
(
--define the rollout  Match
Rollout Params "TurboSmooth"
   (
      button ON_bt "TurboSmooth ON" width:100
      button OFF_bt "TurboSmooth OFF" width:100

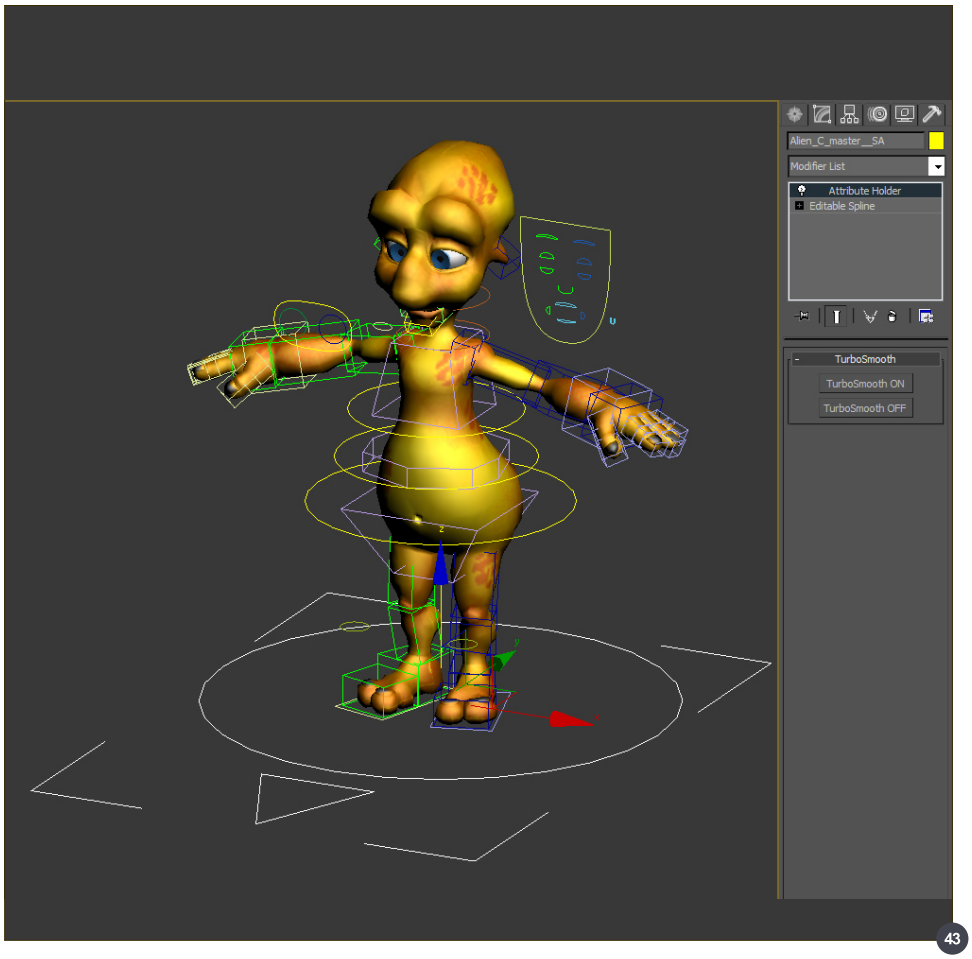
      on ON_bt pressed do-- when  we press the button
      (
         $Alien_C_body__MF.modifiers[1].enabled = True
         $Alien_C_lowTooth__MF.modifiers[1].enabled = True
         $Alien_C_tongue__MF.modifiers[1].enabled = True
         $Alien_C_upTooth__MF.modifiers[1].enabled = True
      )
      --
      on OFF_bt pressed do -- when  we press the button
      (
         $Alien_C_body__MF.modifiers[1].enabled = False
         $Alien_C_lowTooth__MF.modifiers[1].enabled = False
         $Alien_C_tongue__MF.modifiers[1].enabled = False
         $Alien_C_upTooth__MF.modifiers[1].enabled = False
      )
   )
   -- button events

)

-- add the custom atribute to the selected object in the first modifier
if selection.count == 1 then
(
custAttributes.add $.modifiers[1] TSData
print "TS Attributes added"
)

gc()
```

42




43

## CONCLUSION

We have finished the introduction to rigging, and we have learnt how to apply the main concepts to create a good rig.

The final rig is a proper rig that has all the options that the animator will need, making it easy for him to work with.

We have learnt the power of a good naming convention, the power of being organized, how maxscript can help, how to make the rig safe so it can't be modified, the benefit of having all our controllers as a spline and how to create good controls.
This tutorial has given you a starting point in the world of rigging. There are still is plenty of things to learn and develop, but this should have give you the solid concepts to get you started. I hope you have enjoyed the tutorial and learned from it.

## LUIS SAN JUAN PALLARES

For more from this artist visit:

http://www.luis-sanjuan.com

Or contact them at:

luis@luis-sanjuan.com

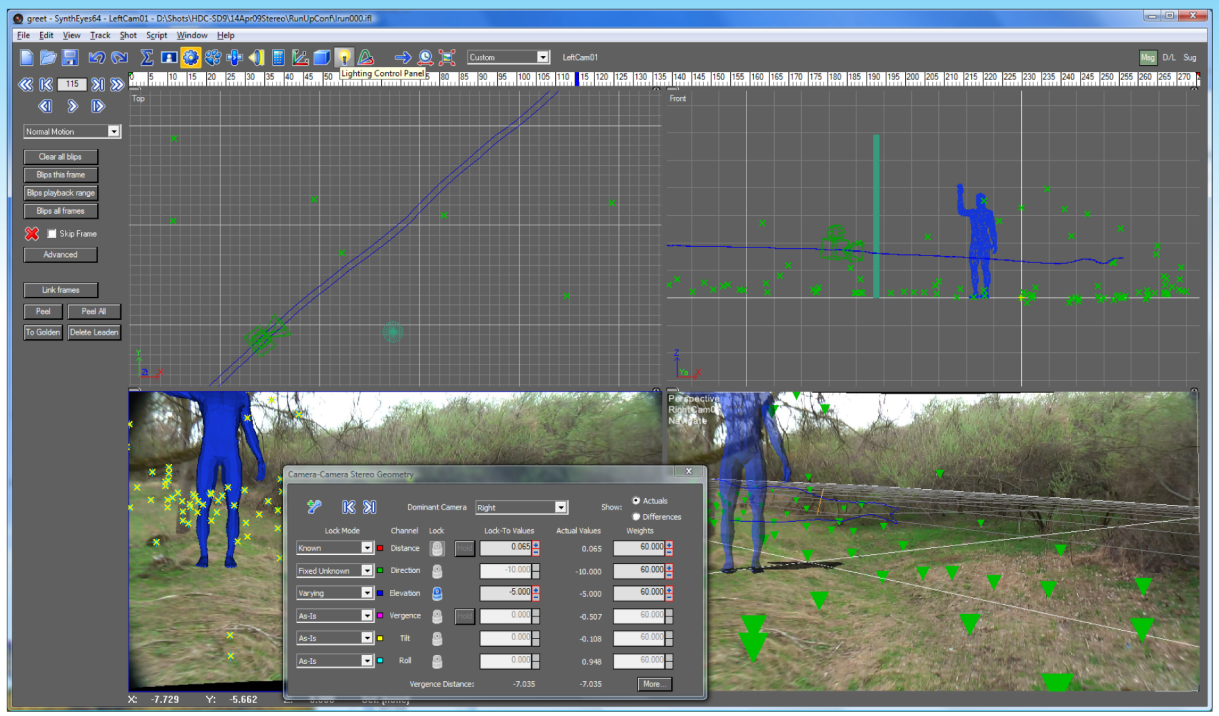



THIS DOWNLOAD INCLUDES
- FREE SCENE FILES
- FREE MACRO SCRIPTS

# SynthEyes

## Match-moving and Stabilization

## Now with STEREOSCOPIC 3D support!



**Available in both 32- and 64-bit versions for both PC & Mac starting at $399**

"Whatever happened to `get a cup of coffee while the tracker is solving´?"

"I just loaded a quick file into the demo I downloaded, I am blown away."

"Saved my life!"

"The software is amazing"

Typical Applications

Fixing Shaky Shots
Virtual Set Extensions
Animated Character Insertion
Product Placement in Post-Production
Face & Body Motion Capture
Talking Animals

"You've got a great product at an incredible price."

ANDERSSON TECHNOLOGIES LLC
**http://www.ssontech.com**
Sixth year in the market, serving artists in over 60 countries

# GET PERSONAL

It began with renderBOXX, the gold standard of dedicated rendering.

It continued with ROW: RenderFarm On Wheels, the world's first turn-key dedicated solution.

And now. . .

## BOXX will change the way you render forever.




## Introducing BOXX renderPRO, the world's first Personal Rendering Option.

Choose from three models: renderPRO4, PRO8 or PRO12 and experience a solution

So Personal that it fits on top of your workstation,

So Powerful that it features six core or quad core Intel® Xeon® series processors

So Professional it's a BOXX

If you're still rendering on your workstation,

it's time to get personal.

It's time to get renderPRO.

BOXX

THE RENDERING AUTHORITY

WWW.BOXXTECH.COM

512-835-0400 | SALES@BOXXTECH.COM

Chapter 1 | April Issue 056
Planning your Rig

Chapter 2 | May Issue 057
Knowing your Tools

Chapter 3 | June Issue 058
Rig Creation – Part 1

Chapter 4 | July Issue 059
Rig Creation – Part 2

Chapter 5 | August Issue 060
Facial Rigging

Chapter 6 | This Issue
Scripting




# INTRODUCTION TO RIGGING

The aim of these tutorials is to show and explain how you might tackle rigging your 3D character for animation. These tutorials will give help and advice to novices and experts who are looking to build on their rigging skills or approach rigging for the first time. The series gives a detailed step by step guide as to how to approach rigging but also shows us how to tackle common problems and issues that regularly occur even in a professional environment. The artists will be reflecting on working in the industry as well as talking us through their individual approaches to creating the best rigs possible.

# INTRODUCTION TO RIGGING: 6 - SCRIPTING

Software used: Maya

## CHAPTER OVERVIEW

In this last chapter we will look at scripting for Maya. Even if you are an animator or modeler, knowing a little about scripting can help you in ways you could never imagine! We can identify the best cases for using scripting by analyzing when you repeat certain tasks, like keyframing sets of controllers or duplicating meshes for symmetry modeling. In rigging this can also be used, but in larger scales. Good examples are the automation of the creation of rigs that are always set up in the same manner, like a reverse foot or when you need to constrain a large quantity of objects while maintaining a certain set of rules.

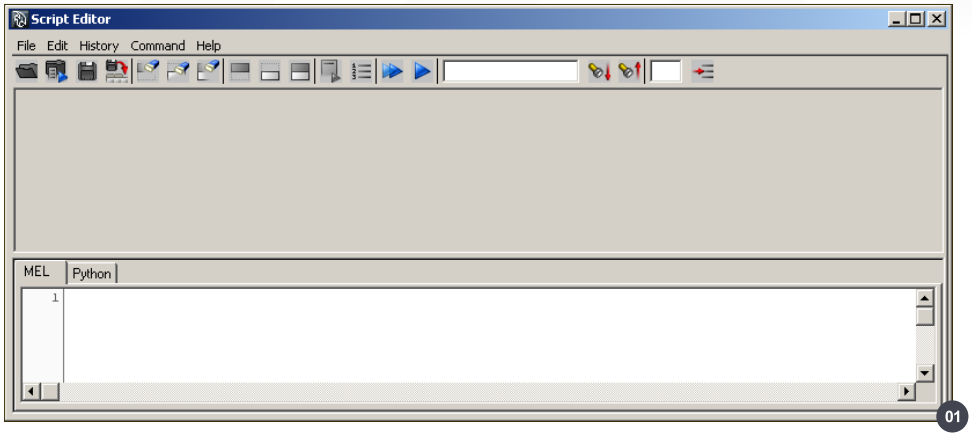
## THE SCRIPT EDITOR

So let's get started. This window will be your best friend when it comes to scripting! Open it up by accessing (Any Mode > Window > General Editors > Script Editor).

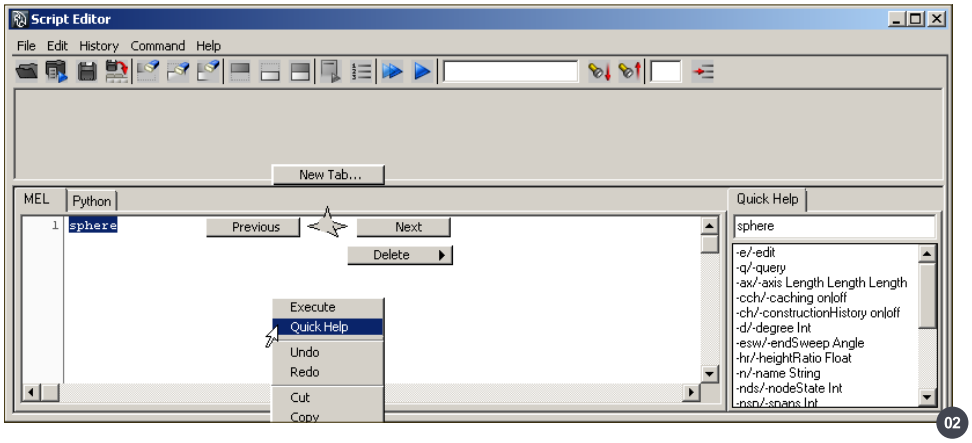
Maya (version 8.5 or higher) comes with MEL (Maya Embedded Language) and Python scripting languages; you can choose which one to use in the script editor. While MEL is better integrated with Maya, Python has the advantage of being a language that is widely used in CG softwares and thus makes it very efficient in cross-program scripts and in code reuse. For simplicity, we will use MEL script in our examples (**Fig.01**).

## SCRIPTING THEORY

To start understanding how scripting works in Maya, you can think about it this way: Everything you do in Maya by clicking with your mouse is actually a "shortcut" to a command. That command is logged into the script editor window where you can see it, copy and most of the times run it again, changing parameters (we call them flags) if needed.




01




02

For instance, let's create a nurbs sphere by typing "sphere" into the MEL tab in the script editor and then pressing the Ctrl+Enter keys on the keyboard - this will run your command and create the sphere. Now, let's use a flag to pass a parameter to the command. Type in "sphere -radius 10" and see what happens!

TIP (info on any Maya command) = If you ever need to know what a command does or what flags it expects, just hit F1 to see Maya's help documents. Go to Technical Documentation > Commands (or CommandsPython) to see all available commands. Or you can use the Quick Help function on the Script Editor's window. Just highlight the desired command on the script editor, right click it to open up a Marking Menu and select Quick Help (**Fig.02**).

So basically, whatever you do while working in Maya will be logged as a command in the Script Editor. That means whenever you need to do repetitive tasks you can run a line of code multiple times and there are functions that will help you to do different things each time the command is used.

## VARIABLES

To help us make things dynamic, the variables exist. Variables store information that we can use in programming and as the name says, their value can vary. Let's create and use a variable to better understand the concept:

- Open up the Script Editor
- Type in: string $sphereName = "ball";
- Press Control+Enter on your keyboard to execute and then type: sphere -name $sphereName;

If you did everything correctly, a sphere by the name of "ball" will be created. Try to assign another value for the $sphereName variable and run the script again!

TIP (using variables) = Remember to always declare (create) your variables before using them. You can create your own variable names,

just do not forget to use the dollar sign ($) at the start of its name! For example: $myName, $numberOfJoints, $currentFrame, etc... (**Fig.03**)

## VARIABLE DATA TYPES

There are lots of variable types in MEL; they exist to categorize data so the script does not try to perform any operation using variables that Maya cannot understand or execute. For example, you can subtract numbers, but can you subtract letters? As there are several data types, we will be only be looking at three in this tutorial:

1. We just declared $sphereName as a string variable - this kind of variable can contain any text, including numbers, white spaces and special characters like a tab or a return line;
2. There is also the int variables that are used for numbers and can only contain whole, non-decimal numbers like “1”, “2”, “4”, “180”, “-30”, and so on;
3. Finally the float variables, that are also used only for numbers, but contain only fractional numbers like “1.0”, “3.96”, “-560.34” and so on.

TIP (casting variables) = You can force some variables to show as another type by casting. You do this by writing the wanted data type name and then enclosing a variable or value in parenthesis right after that. Try writing “print (int(4.5));” in the script editor.

## ARRAYS

Sometimes we need to deal with a large amount of data and using lots of variables can be troublesome. For these cases there is a different variable type with the ability to easily organize, access and manipulate data. They are called arrays.

A single array can contain multiple strings, integers, vectors, you name it - but only one type of data at a time. That means if you create an integer array, you cannot populate it with a string or a float number. To store and access data to the array you work with an index identifier, pretty much like an unique number in a queue; the order the elements that are being stored in the array is the order you will call it later (please remember that array indexes always starts at zero!). Do not worry about this now, things will get clear when we put it into practice.

To create an array, just put a pair of square brackets after the data type. For example: string $names[], int $numbers[], float $decimals[], etc.

To populate arrays use a pair of braces encapsulating your data and separate them with commas, like so: string $names[] = {“Julie”, “Florence”, “Yuki”}; int $numbers[] = {1, -2, 4, -8}, float $decimals[] = {1.34, 5.0005, -0.4498}, etc.

## LOOPS

Now that you know the basics about variables and arrays, let’s take a look at loops. Loops, as the name suggests, are used to repeatedly execute a piece of code several times. Combine this with the power of an array and you will get yourself a new best friend!

For a simple introduction, let’s execute this for loop, like so:

```
int $numberArray[] = {1,2,3,4,5};
for ($i in $numberArray) {
    print $i;
};
```

You will get the following result: “12345”. Simple, right? You must be wondering about that $i variable over there... it’s simply our index variable. You can name it as you wish and you don’t need to declare it before entering the loop (unless you want to keep track of it’s last value). So, every time the code between the braces finish it goes back to the top, gets the next data value in queue and repeats all over



again, changing the value of the $i variable dynamically. To understand, take a look at this next piece of code that is a bit more complex:

```
string $namesArray[] = {"John Doe", "Dude", "Bob"};
for ($name in $namesArray) {
    print ("Hello! My name is " + $name + ". Nice to meet you!\n");
};
```

TIP (printing to a new line) = Notice the "\n" at the end of the print string. That is a special character used in strings that makes Maya continue printing in a new line to prevent concatenation, as happened in our first numberArray example. Other special characters include "\t" for tabbing and "\b" to create a nice little... bullet thingy (**Fig.04**).



04

## Conditionals

Ok, so far we can work on really simple and repetitive scripts. But what if you need something more complex like adding some "choice-making" to them? Meet the conditionals.

Conditionals allow your code to choose how to act based on any rule you write - better than that, they prevent your scripts from breaking or even your software from crashing, just by checking if certain conditions are met. If not, you can make the action cease and display an error message or even continue through another route. For instance:

```
string $selectedObjects[] = `ls -sl`;
if (`objectType $selectedObjects[0]` == "joint" ){
    print "You have selected a joint! As a prize, you win a polyCube!\n";
    polyCube;
} else {
    print "There is no joint selected! Bad, bad user!\n";
}
```

Now take a look at this other kind of conditional which can be very useful:

```
int $numberOfSpheres = 5;
int $i = 0;
while ($i < $numberOfSpheres){
    sphere;
    $i++;
};
```

When run, this code creates five spheres on top of each other. The while conditional also works as a loop - in this case, the conditional worked as a counter since at the end of every iteration, it was checking to see if the statement was still true. When its not true anymore, the loop stops running.

TIP (capturing return values) = Notice the grave accent (`) symbols surrounding the "ls" command of the first conditional example. In MEL they are used to indicate that you want to get and use the return value(s) of that command. In other words, every object name that is listed using the "ls -sl" command will be automatically put inside the $selectedObjects array that we can use later in a loop, for instance.

NOTE: It's important that you declare the variable that will capture the return value(s) as the right data type, otherwise you may get a data type error. Check the Maya Commands reference to see the expected return type for each function.

## Procedures

When your script starts to get bigger, it also starts to get troublesome to edit variables whenever you need to debug it. Using procedures we can run several lines of code using a single command, easily feeding data to it at the same time. Some more features were added to our last script, take a look at the procedure below:

```
proc createSpheres(string $sphereName, int
$numberOfSpheres, float $positionOffset){
    int $i = 0;
    while ($i < $numberOfSpheres){
        sphere -name ($sphereName + ($i+1) );
        setAttr .translateX ($positionOffset*$i);
        $i++;
    };
};
```

After running the code above, nothing will happen. That is because we only declared the createSphere command. Let's run it by typing:

```
createSpheres("ball", 5, 3);
```

You will notice five spheres with the name "ball" were created separated by the same amount of units we wrote as the $positionOffset value. Much easier, right? It's like creating your own commands and defining your own flags (**Fig.05**).

NOTE: In the rest of the chapter we will look at a couple of scripts and try to explain how they work as much as possible. Until now we have only seen the tools you can use to accomplish certain tasks. But like in real life you can use tools the way you want to build anything and most of the times there is not only one way to do things. So keep in mind you can (and must) change whatever you see fit in the code in order to experiment and understand.

Remember! Your best friend in any situation is the Maya Commands Help documents, accessible by pressing F1 inside Maya. If you get stuck in a tricky part, try searching for similar scripts on the internet and learn by looking at other people's code.

## THE ZEROOUT PROCEDURE

Alright! Now let's test some of our gained knowledge to create a script! Something simple and yet very, very useful... a zeroOut procedure. Ok, so what we need is to create a group to zero all the transformations of any selected object without moving it's location. Let's start by creating our procedure with pseudo-code, so that we have a good guideline to follow:

```
proc zeroOut(){
    //get the object
    //create the group and name it
    //snap the group's position to the object
    //parent the object to the group
}
```

TIP (comments) = You can comment lines in your script so it is easier to organize and debug; just add two slash (//) symbols at the beginning of a commented line. To comment multiple lines, use a slash with an asterisk (/*) to start the comment and an asterisk with a slash to end the comment (*/).

Let's see this line by line.

- The only way to get the selected object in Maya is by using the ls -sl command, so let's use it! Since it returns an array, we should capture the results as so:
  `string $selectedObjects[] = `ls -sl`;`

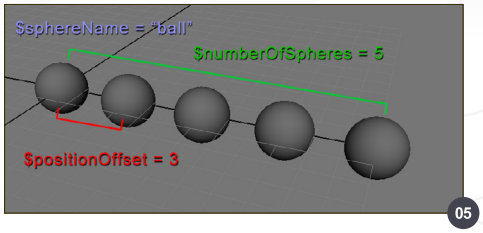
- Now let's create our zeroOut group - since we cannot set its position and orientation at creation, let's just give it a name. The same as the object, but with a suffix:
  `string $zeroOutGroup = `group -name ($selectedObjects[0] + "_grp")`;`

- With our group created, we need to snap the position and orientation of the group to be the same as the object. The easiest way is to parentConstraint it (then get rid of the constraint):
  `string $constraint = `parentConstraint $selectedObjects[0] $zeroOutGroup`;`
  `delete $constraint;`

- And now, for the finishing touch:
  `parent $selectedObjects[0] $zeroOutGroup;`

Put it all together in order and you should get:

```
proc zeroOut(){
    string $selectedObjects[] = `ls -sl`;
    string $zeroOutGroup = `group -empty -name
($selectedObjects[0] + "_grp")`;
    string $constraint[] = `parentConstraint
$selectedObjects[0] $zeroOutGroup`;
    delete $constraint;
    parent $selectedObjects[0] $zeroOutGroup;
}
```



05

Ta-daaa! To test it, select any object and type zeroOut at the command line!

## THE CREATE FINGER CONTROLS PROCEDURE

Going a bit further in complexity, with all this brilliant knowledge we have seen so far, we can create a MEL script to automate the rigging process of fingers controls, so let's code:

```
// declare variables:
string $mirror[] = {"l_", "r_"};
string $jointNames[] = {"thumb", "index",
"middle", "ring"};
string $hierarchy[] = {"A", "B", "C"};

// run loops to create curve controls:
for ($side in $mirror) {
    for ($jntName in $jointNames) {
        for ($hier in $hierarchy) {
            string $control[] = `circle -ch off -r 0.4
-nr 1 0 0 -d 1 -name ($side+$jntName+$hier+"_
ctrl")`;
            parentConstraint -name "tempToDelete"
($side+$jntName+$hier+"_jnt") $control[0];
            delete "tempToDelete";
            select -r $control[0];
            zeroOut(); // call zeroOut procedure
            // control joints by control curves:
            parentConstraint $control[0]
($side+$jntName+$hier+"_jnt");
```

```
};
    // parent curve controls in hierarchy:
    parent ($side+$jntName+"B_ctrl_grp")
($side+$jntName+"A_ctrl");
    parent ($side+$jntName+"C_ctrl_grp")
($side+$jntName+"B_ctrl");
};
// put all inside a control group:
group -n ($side+"hand_fingerControls_grp")
($side+"thumbA_ctrl_grp") ($side+"indexA_ctrl_
grp") ($side+"middleA_ctrl_grp") ($side+"ringA_
ctrl_grp");
};
```

(**Fig.06**)

To run this code, you have to create all the necessary joints, like "l_thumbA_jnt", "l_thumbB_jnt", "l_thumbC_jnt", "l_indexA_jnt", and so on...

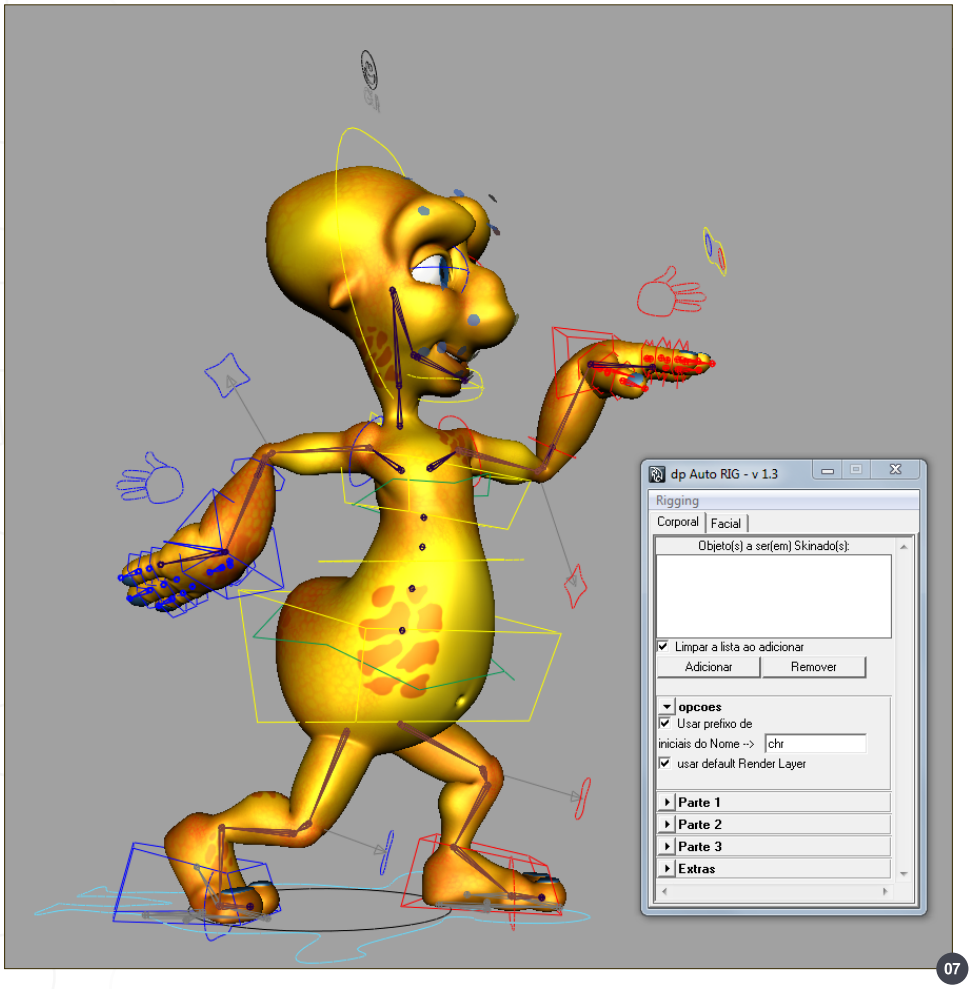
Some interesting things to notice in this code are:

- We declared arrays at the start of the code to loop over them - imagine writing the same code over and over for each joint, it would be a waste of effort and a lot harder to debug.

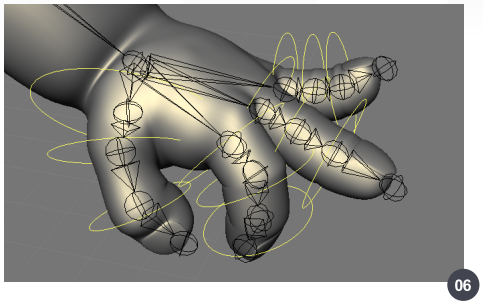
- Three nested loops: that creates even shorter code! The script for the left and right sides is the same, so why not run everything twice only changing the prefix?

- The code is limited to four fingers in the $jntNames array and three joints (A, B and C) on the $hierarchy array. Can you make it work with more joints and fingers? A tip: store the controls names in an extra array.

TIP (your first steps on automatic rigging) = this code can be put into a procedure to be called inside an automatic rigging solution! Versatility is the key! Take for example Danilo Pinheiro's Auto Rig script, this tool can rig a character like the ETotal in less than an hour! (**Fig.07**)




07



06

## The End

In the next chapt.. wait a minute. This is the end of the Maya Introduction to Rigging Series! Well, we hope that you enjoyed it and learned a lot, because we sure did! Our concern was to create good lessons (not too simple and not too complex) that could get anyone started on rigging: a fun and rewarding experience!

Like we continuously repeated across our lessons, this is only the start of your rigging studies. Keep up the rhythm and do not forget to always think about the reasons why you are doing something. Try to always be organized and simple - do not follow tutorials blindly. And last but not least, try to always have fun while you are at it - it is the key to learn faster and better!

Danilo and Richard signing off now, see you next time!

## Richard Kazuo & Danilo Pinheiro

For more from these artists visit:
http://riggerman.animationblogspot.com/
http://nilouco.blogspot.com
Or contact them at:
richardyzo@gmail.com
nilouco@gmail.com

# 3DC next month

**Here is what's in next months issue of 3dcreative**

## Tutorials

**Mudbox Female Character Creation:**
Chapter 6 - Werewolf
by Wayne Robson

**How to Stylize and Model Toon Animals / People**
Chapter 4 - Modeling
by Jose Alves da Silva

**Environment Lighting: Indoor Scene**
Chapter 5 - for 3ds Max + Vray
3ds Max + MR, Maya, Cinema4D

**ZBrush Monster Character Creation**
Chapter 1 - Aquatic
by Joseph Harford

## Interviews

**Dragos Jieanu**

## Galleries

another **10 of the best**
Images from around the world!

## Making of's

**Making of Fat Summer**
by Igor Catto

**visit www.3dcreativemag.com for full information and to purchase current and previous issues for only £2.75 each!**

Image by Dragos Jieanu

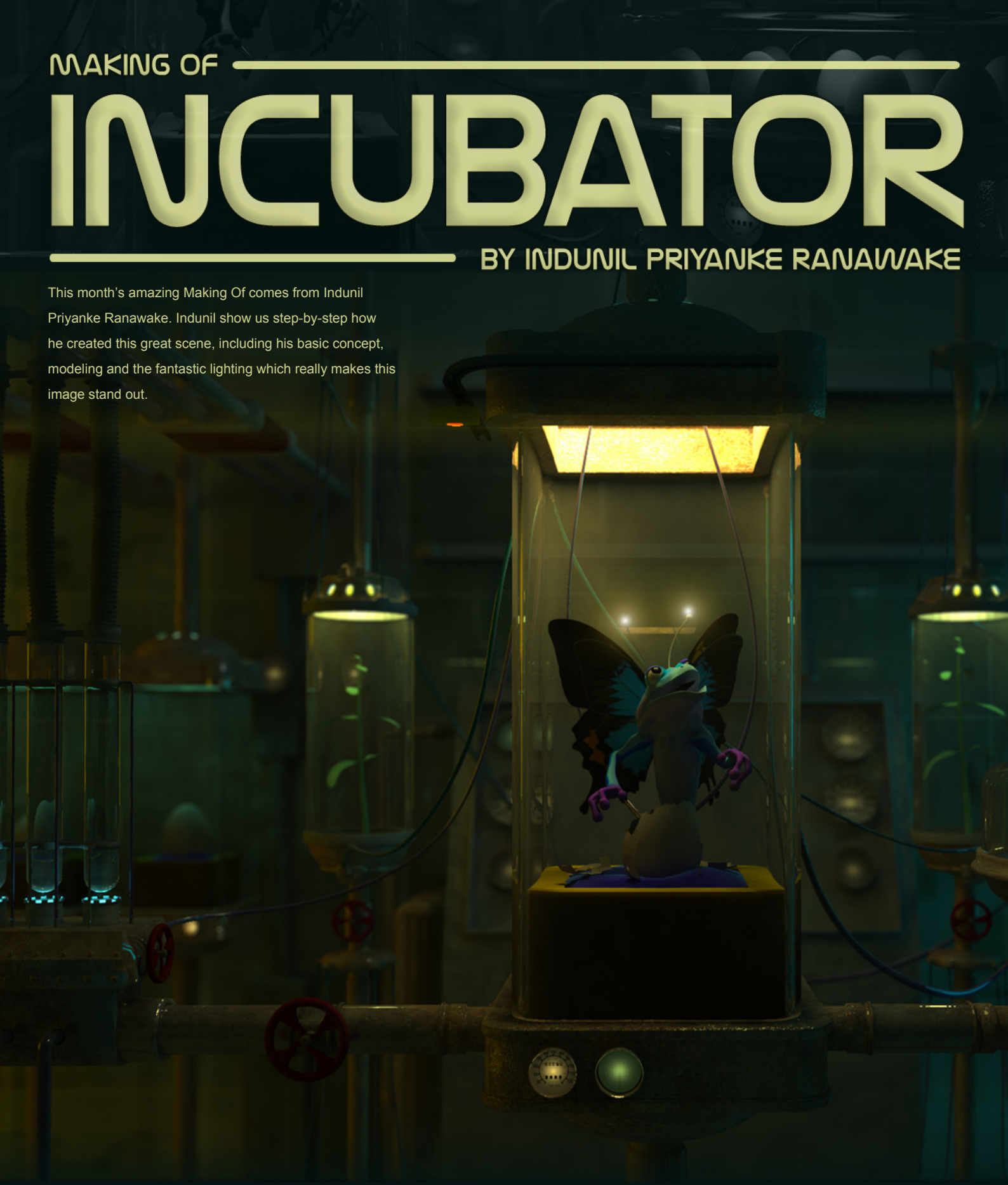

Subscribe
SUBSCRIBE NOW & SAVE UP TO 25%
on this already amazing value publication!
12 ISSUES FOR THE PRICE OF 9
£24.75 save £8.25 (approx - $35.91 save $11.97)
6 ISSUES FOR THE PRICE OF 5
£13.75 save £2.75 (approx - $19.95 save $3.99)
Have your 3DCreative Magazine
Download link delivered automatically
to your inbox every month...and have
it before anyone else!

MAKING OF

# INCUBATOR

BY INDUNIL PRIYANKE RANAWAKE

This month's amazing Making Of comes from Indunil Priyanke Ranawake. Indunil show us step-by-step how he created this great scene, including his basic concept, modeling and the fantastic lighting which really makes this image stand out.



"I DIDN'T WANT ANY SKY LIGHT IN THE SCENE BECAUSE THIS IS A SECRET UNDERGROUND INCUBATOR WHERE CLASSIFIED SPECIES ARE PRODUCED."

# Making of Incubator

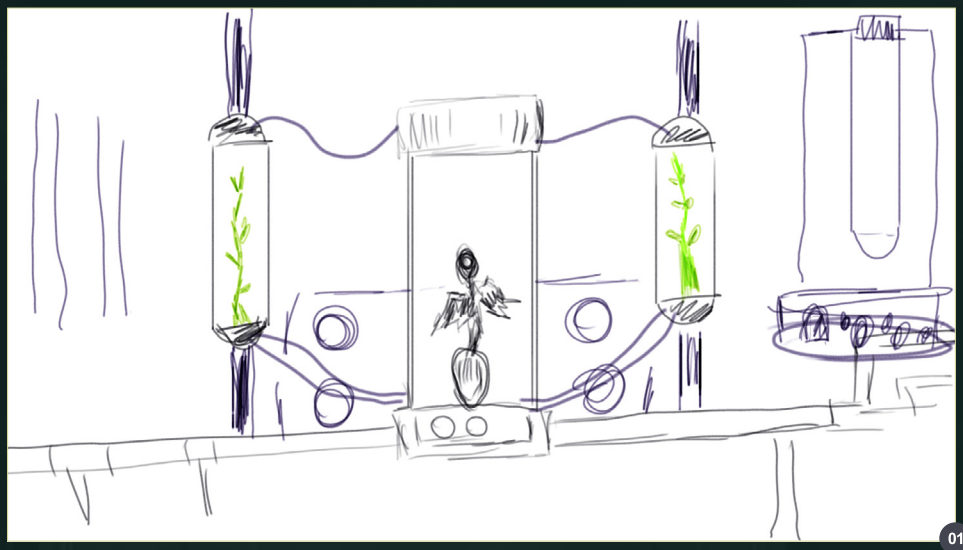
**Software Used:** Maya, 3D Studio Max, V-Ray

## Intro

I will always remember making this image as it was a lot of fun! I did this image for a contest for The Gnomon Workshop and I had less than 20 days to complete it. The theme of the contest was “Incubator” and my first step was to come up with a nice concept.

## Concept

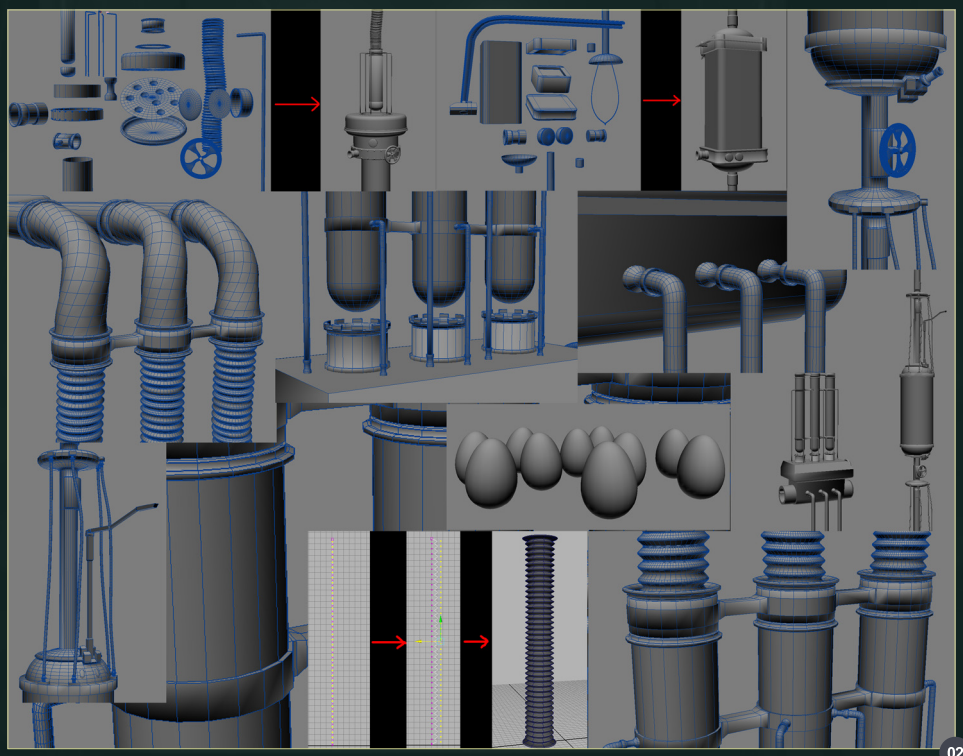
I wanted to do an old laboratory style incubator. I imagined it to have a new kind of genetically engineered plant, which produced super oxygen to feed a new species. I wanted to integrate a character as well so I came up with this concept drawing in Photoshop (**Fig.01**).



01

## Modeling

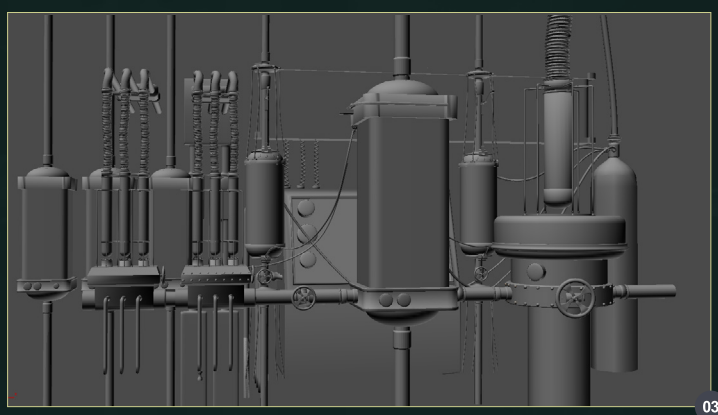
I did all the modeling in Maya. Modeling the incubator was very simple, nothing tricky. When all the objects are together it seems a bit complex of course, but if you look at them individually they are very simple (**Fig.02**).



02

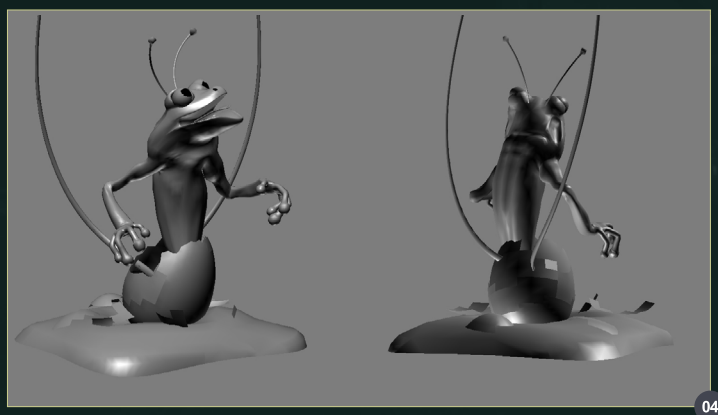
You can see that I have used nothing but boxes, spheres and cylinders with extrude and bevel operations. I also used NURB tubes for the wires and air pipes and some wave typed curves with a revolve operation applied to them to create all of these models.

When these are all put together it looks like this (**Fig.03**).

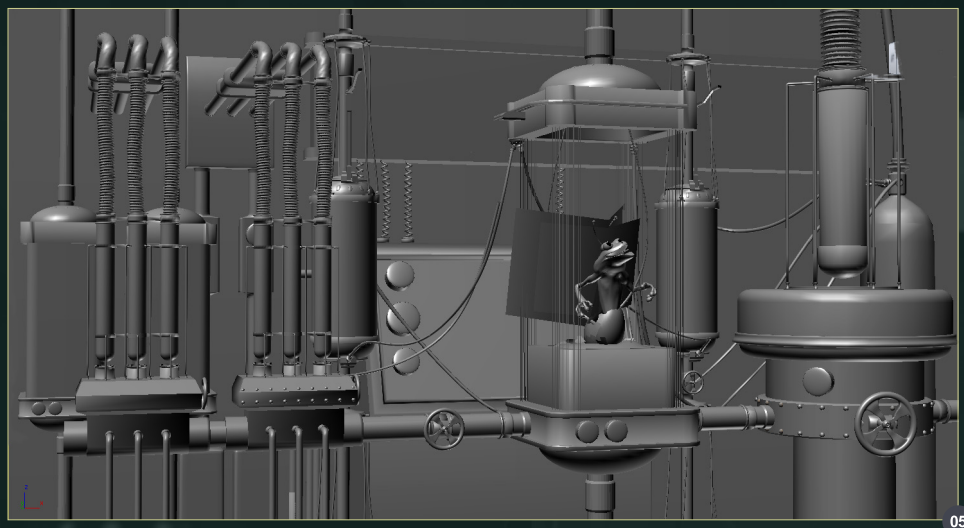


03

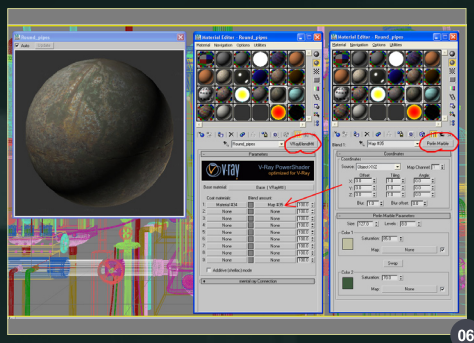
The only organic model in this scene was the frog with butterfly wings. I had made a frog in the past so I used this and deleted his legs so I could fit him into the egg easily. I also posed him and gave him a facial expression as if he is amazed to see the new world (**Fig.04**). With the



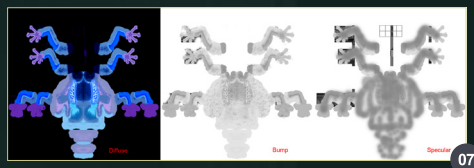
04



05



06

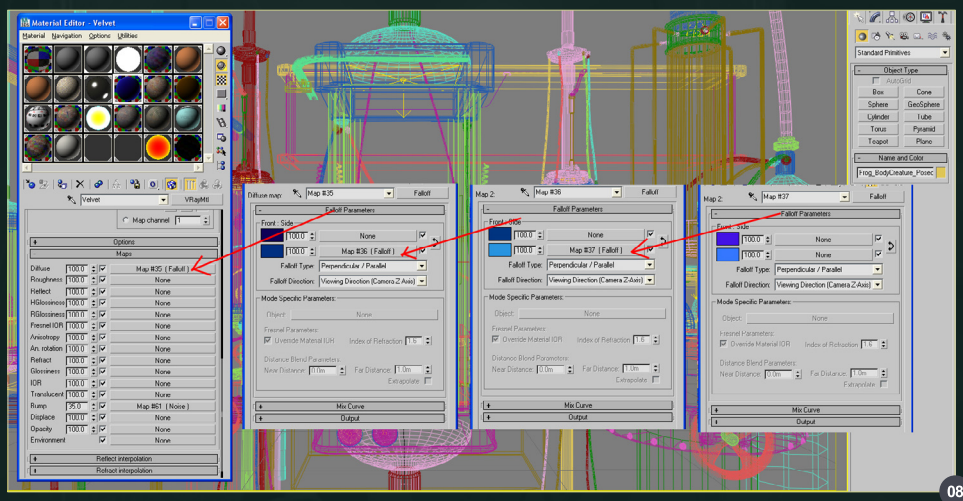


07

character put in place the scene looks like this (**Fig.05**). At this point I was ready to start the texturing.

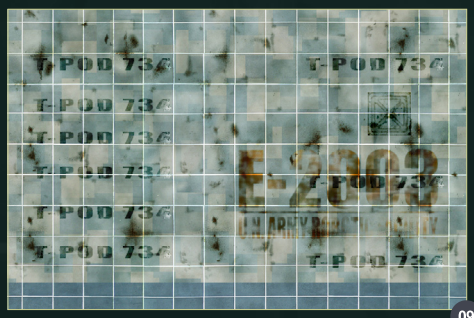
## Texturing

I exported the whole scene into 3ds Max as an obj file to start the texturing and lighting. Texturing the scene was also fairly easy. I used V-Ray Blend Material for most of the shaders, including the dusty glass that surrounds the creature and the rusty metal. One secret is that I have used a Perlin Marbel procedural map as the mask for 99% of my blend materials, because it creates a beautifully organic look (**Fig.06**). The character's shader on the other hand is nothing but color and specular maps (**Fig.07**).



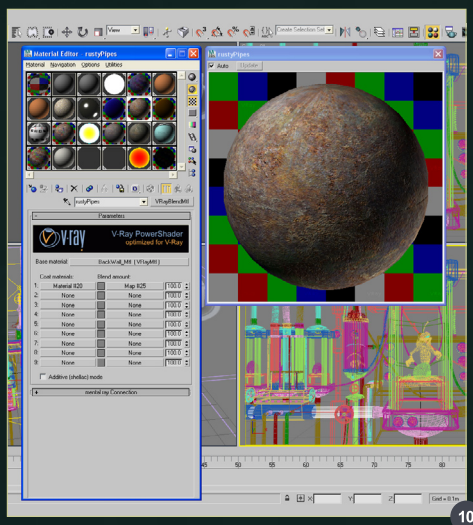
08

in the Diffuse channel and a Noise map as the Bump (**Fig.08**). The back wall is simply UV mapped with a texture painted on in Photoshop (**Fig.09**).



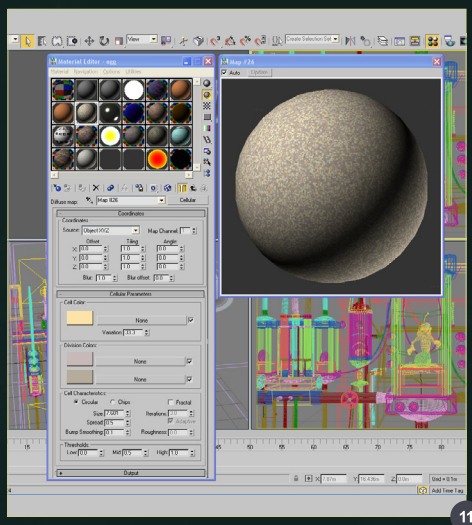
09

The velvet shader is created with a V-Ray material with three Falloff maps nested together



10

The egg texture was created with a Cellular procedural map (**Fig.10**).



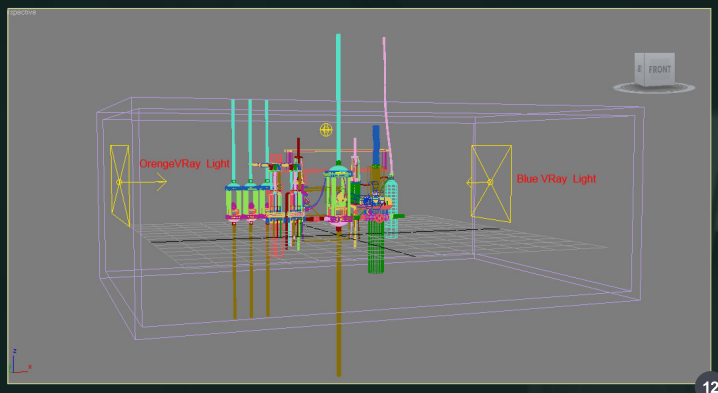
11

The V-Ray Blend Material was used to create the shader for the rusty pipes (**Fig.11**).

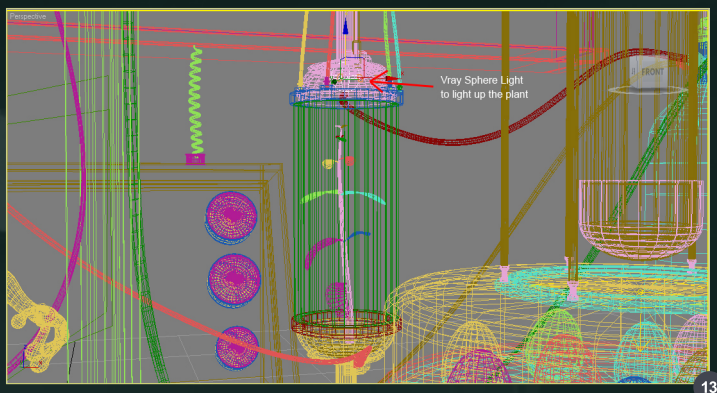
Note: When creating these textures I found the Total Textures collections from 3DTotal very useful.

## Lighting

Now I'm going to talk about my third favorite phase of the process, the lighting. I had a clear idea how I wanted to light the scene. I wanted the scene to be dark but lit, and to be colorful. I



12

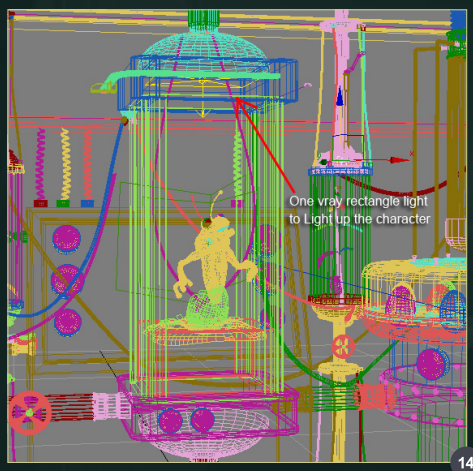


13

didn't want any sky light in the scene because this is a secret underground incubator where classified species are produced. For these reasons I covered the whole scene with a big polygon box.

Now the fun part begins. Blue and yellow is one of my favorite color combinations. So I decided that I would put the incubator in the middle and make light come from both sides, blue from one side and yellow from the other. To do this I placed two big rectangular V-Ray lights in the scene (**Fig.12**).

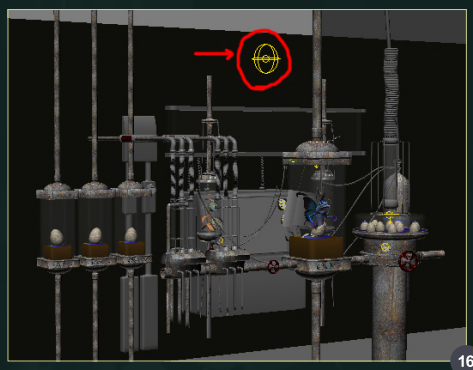
I also placed two lights to represent the artificial light that is needed to grow the plants (**Fig.13**). One V-Ray light to light the character (**Fig.14**), one V-Ray light to light the eggs (**Fig.15**) and one V-Ray sphere to light the wall and table at the back (**Fig.16**) as I thought it should be lit with a pure white light.

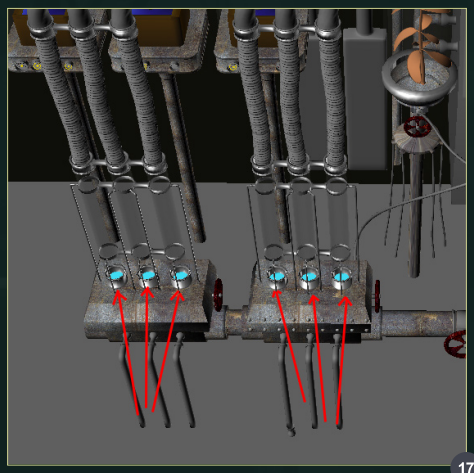


14



15


16


17

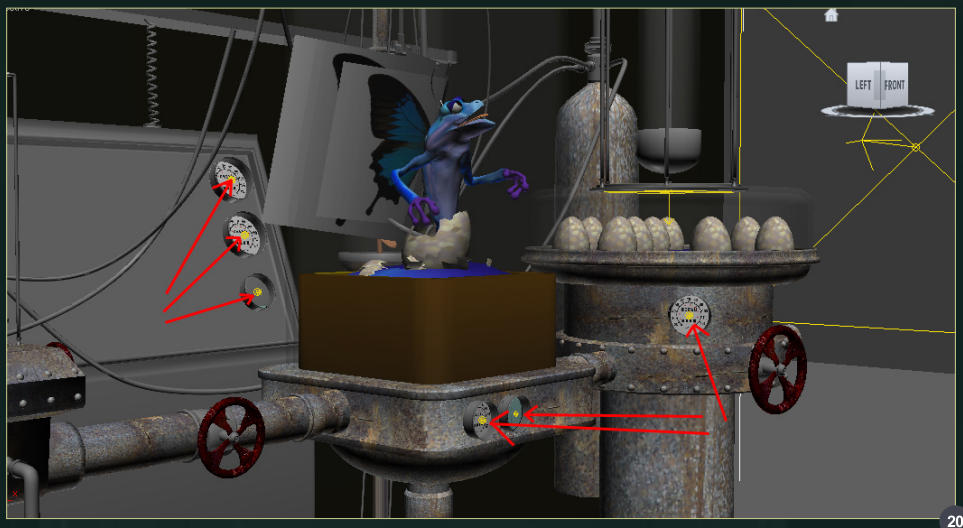

18

Three spheres with blue V-Ray light materials were used to create the look of blue colored fire under the test tubes (**Fig.17**). Again I used three V-Ray spheres for the three containers in the back that have the three un-hatched eggs in (**Fig.18**).

I used another V-Ray sphere to light the interior of the big tube that is above the egg collector


19

(**Fig.19**). Small V-Ray spheres were placed in each of the meters so that every dial was individually lit (**Fig.20**).



20

These are the lighting passes (**Fig.21**). These are the V-Ray render settings (**Fig.22**). When all the lights were merged together, the render looked like this (**Fig.23**).



21

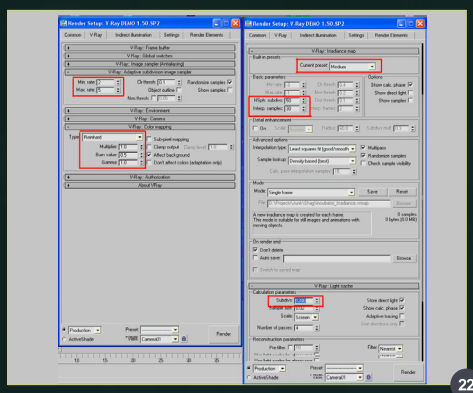
Then I jumped into my second favorite phase of the process: compositing.

## Compositing

As I told you at the intro, I created this image for a competition and I had a tight schedule. When I came to the lighting and rendering I was sort of out of time, and I hadn't done the compositing, which was a sad thing. So I didn't even render an Ambient Occlusion pass for this one. I only had time to add the ZDepth and a little color correction (**Fig.24**).


23

I would strongly recommend that you to do your render in passes like Diffuse, GI, Lighting, Shadow, Specular, Reflection, Refraction, Ambient Occlusion, ZDepth etc because you can really boost the quality of your final image. If I had time for that, this image probably would have been even better, but anyway here is my final image (**Fig.25**).


22

Now this is my favorite phase of the process. Sitting back, relaxing and admiring the art!

Indunil Priyanke Ranawake

For more from this artist contact them at:

ipranawake@gmail.com




24



25

# Digital-Tutors Next Training Revolution

# VAULT



## Watch on the train, plane or even on set

Now you can download at no extra cost. Subscribe today and get access to over 12,000 videos!

**Learn more @ www.digitaltutors.com**



digital-tutors®
Online Training Library

Copyright © 2002-2010 Digital-Tutors, a service of PL Studios, Inc. All logos and trademarks are the properties of their respective owners.






# THE ARCHIVE








The Archive™ is the world's largest collection of 3D content representing hundreds of thousands of man-hours in development. It features 16,504 high-quality models across a wide range of subject matter including more than a thousand digitized vehicles, highly detailed human anatomy, architectural landmarks, military vehicles, aircraft, 3D geography, characters, animals, and much more - all for an incredibly low price.

The Archive models have been used in numerous films, games, and 3D productions. For aspiring artists this can mean an instant increase in the quality of your work, while industry professionals can save the time normally spent modeling and put it toward more productive use.

All models are provided in industry standard OBJ format, which is supported by virtually every animation package. This allows models to be effortlessly used and moved between applications.

**The Archive Platinum Edition - $299**
The Platinum Edition features 10,054 models - perfect for individuals who need access to a variety of models.

**The Archive Titanium Edition - $599**
The Titanium Edition includes all 16,504 models including digitized vehicles, scanned anatomy, accurate military models, landmarks, and more.

Visit **www.digimation.com/archive** to purchase, view the models, download a demo, and try out three models for free.



3ds max
+ mental ray

DOWNLOAD RESOURCES
- Free Artist Final Scene

Scene Created by: Viktor Fretyán | Tutorial Written by Jamie Cardoso

# Environment Lighting

This five part series will focus on the topic of setting up a variety of lighting rigs that reflect natural lighting at different times of the day and manmade interior lighting. Each of the chapters will use the same base scene as a starting point, and will show a step by step guide to finding a lighting and rendering solution that best reflects the desired lighting situation.

The tutorials will explain the type of lights used and how to set up the parameters along with talking about the different methods of tackling the subject. The manipulation of textures may also be covered in order to turn a daylight scene into night scene for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.


Chapter 1 | June Issue 058
Sunset / Sunrise

Chapter 2 | July Issue 059
Broad Daylight

Chapter 3 | August Issue 060
Artificial Light - Bright over head light at night

Chapter 4 | This Issue
Artificial Light (Night-Time) - Mood Lighting (Low-Level - Romantic)

Chapter 5 | Next Issue
TV-Lit (Night-Time) with Low-Level Lighting

# CHAPTER 4 - ARTIFICIAL LIGHT

**Software Used:** 3ds Max + mental ray

Mood lighting scenes often consist mainly of a nice balance between bright and dark areas, coupled with beautiful warm and light colors. Moreover, the luminance and the appearance of the lampshades should also help convey the mood of the image.

Finally, it's common practice to source for photo references of similar lighting conditions, to help visualize the final piece.

Having set up the previous interior night scene (i.e. Artificial Light (Night-Time) _Bright Overhead Lighting), this exercise will be focusing mainly on creating a nice mood lighting effect and fine-tuning some of the existing shaders, to react harmoniously towards the light.

To create the mood lighting effect, we are going to light up the lamp shades in the scene, and keep their intensity to a minimum.

Throughout the exercise we will tweak and test render each added light to help control the overall brightness of the scene.

Open the Max file under the name of "start_artificial_Nightime_mood lighting_lowLevel_romantic.max". Note that the scene has the mental ray renderer loaded, overhead light is in the scene, FG is enabled with exposure controls; etc.

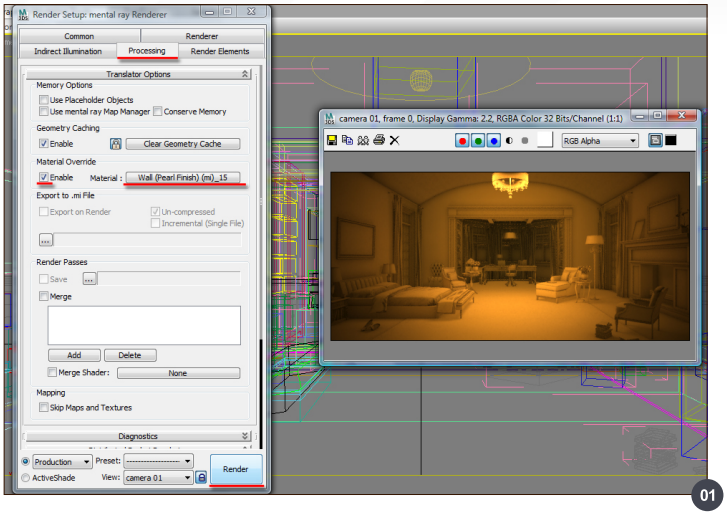
Open the Render Setup dialog. Under the Processing parameters rollout, enable the Material Override and test render the scene. Ignore the Missing Map Coordinates dialog by clicking "continue" and the "don't display this message" function.

Note that this message is only appearing because the Material Override is enabled. Once disabled for the final test renders, it will no longer be prompted (**Fig.01**).

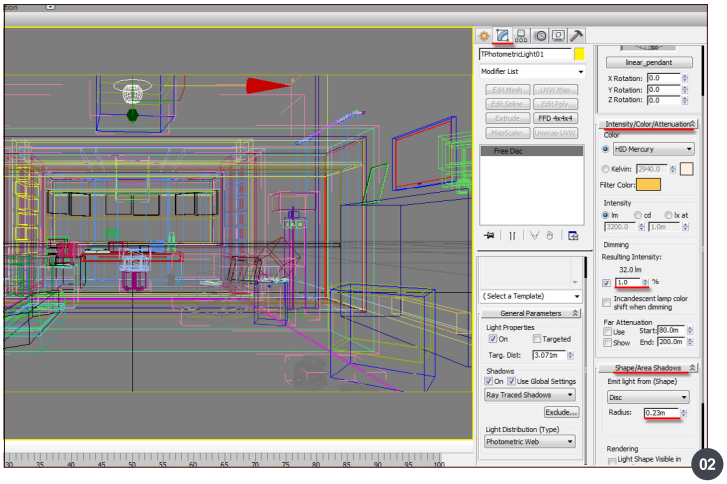
The scene is currently brightly lit by the overhead light from the previous exercise. As mentioned earlier, when adding numerous lights it is crucial to test render the effect of each new light added in the scene.

Select the overhead light. Open the Modify command and decrease Resulting Intensity to about 1.0. In the Shape/Area Shadows parameters rollout, decrease its disc radius to 0.23. Do a test render to see the changes (**Fig.02**).

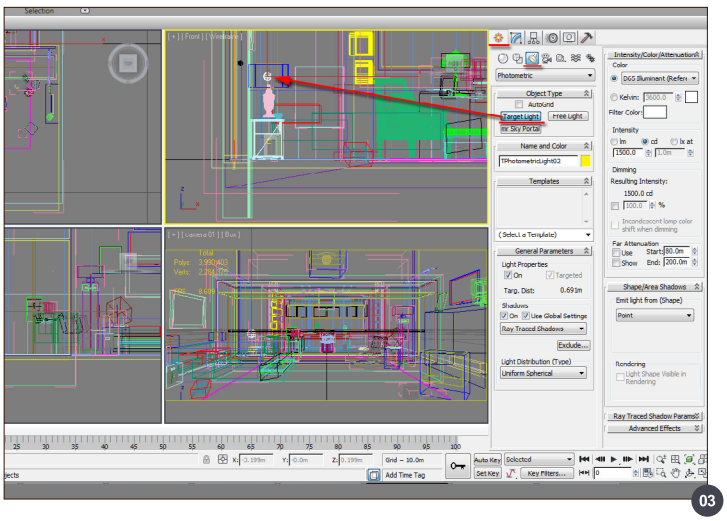
The render is very dark now. To begin brightening up the scene, we are going to add an artificial light to the bedside lamp shades.




01



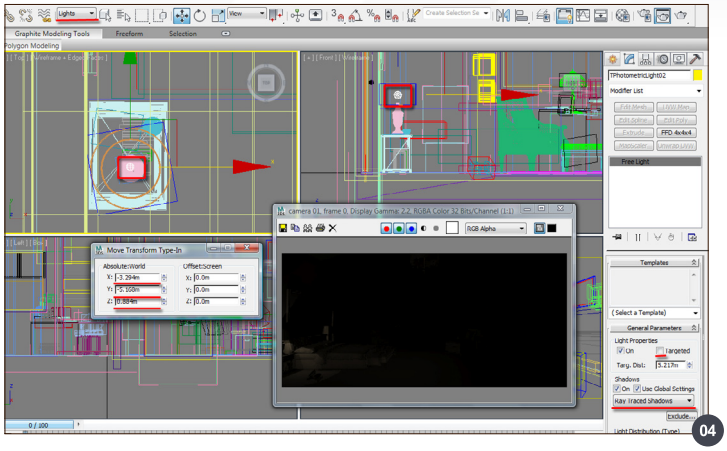
02

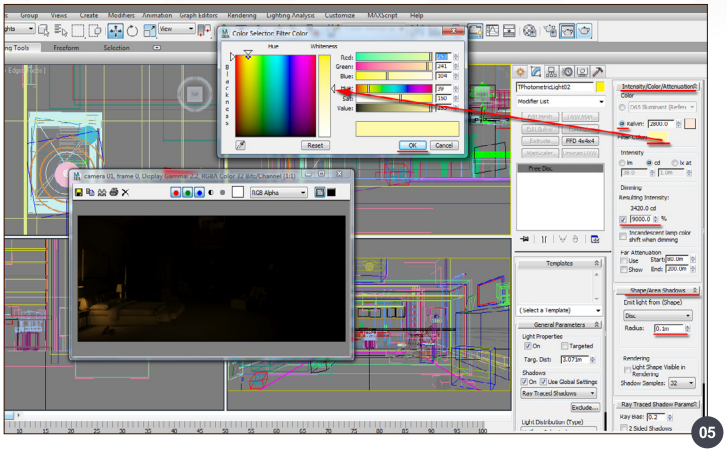


03

Maximize the viewport (Alt + W) to have full control of all viewports. Open the Create command and select the Lights set. Zoom in close to the lamp shade area in the front viewport; choose the Target Light type, followed by clicking and dragging it to create it (**Fig.03**).

Now that its target is set (i.e. downwards), disable it to facilitate moving the light around the scene. In the Shadows group, change it to Ray Traced Shadows, as it works best with mental ray. Change the Selection


04

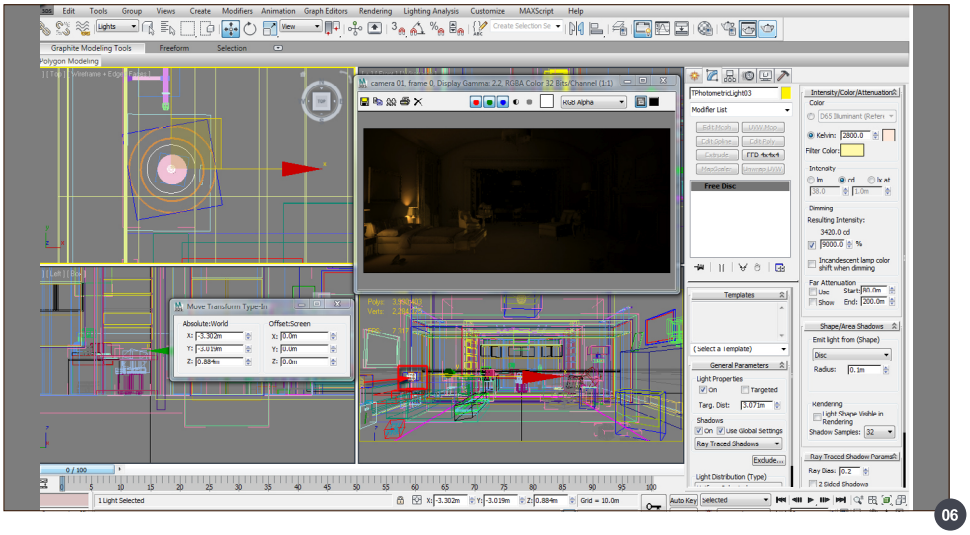

05

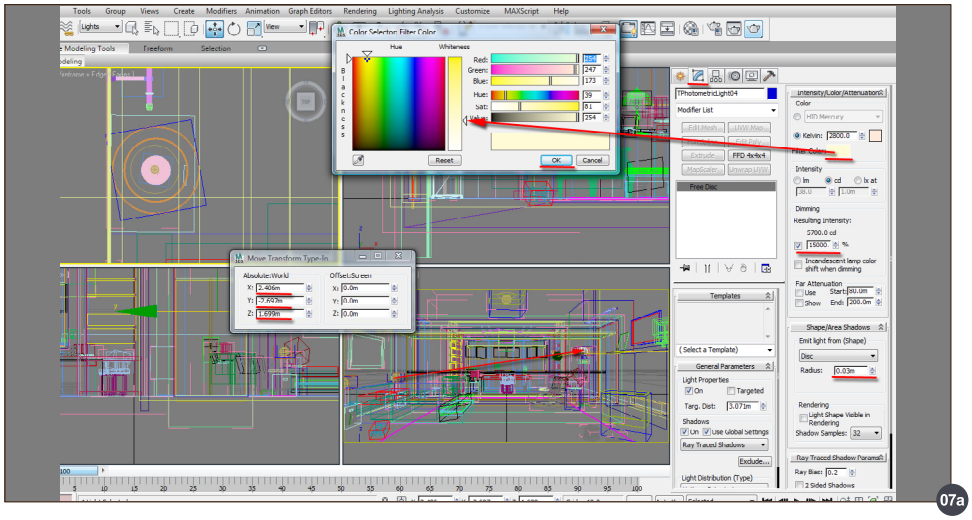
filter type to Lights, to avoid selecting anything else in the scene. In the top viewport, move the light closer to the centre of the lamp shade and change the visual style to wireframe if necessary. Then test render the changes (**Fig.04**).

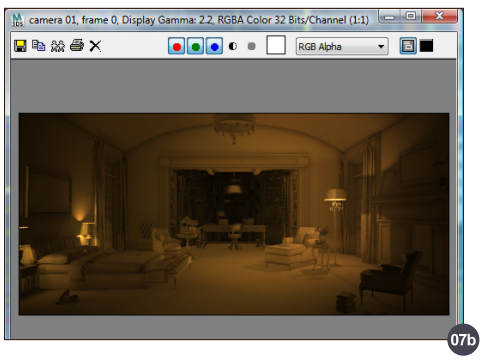
The scene is now slightly brighter; however, it could benefit from more brightness. Also, the shadows could be softer and the light color a bit warmer.

While the light is still selected, open the Intensity/Color/Attenuation parameter rollout and change the Filter Color to a yellowish tone. This will add some warmth to the scene. In the Dimming group, increase Resulting Intensity to about 9000.0, to make the scene slightly brighter. In the Shape/Area/Shadows group, increase the disc Radius to about 0.1. This will soften the shadows a bit (i.e. high disc values = softer shadows). Test render again (**Fig.05**).

The render has a much warmer “feel” to it now. Next, we are going to “copy instance” this light to the other lamp shade. Test render again. Note that we are systematically test rendering to monitor the brightness of the scene as more lights are added.


06

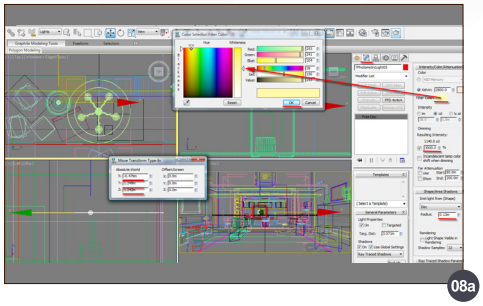

07a

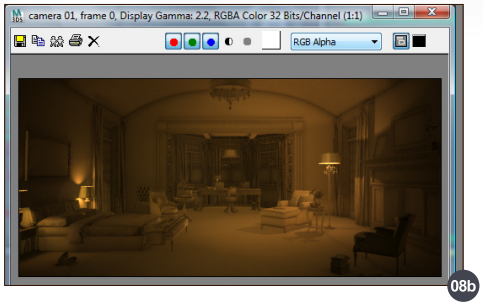


07b

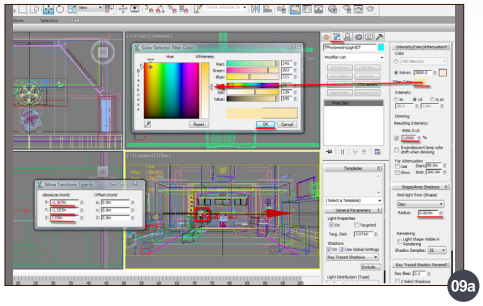
So far, the brighter and darker areas of the scene are still defined (i.e. depth) (**Fig.06**). Next, we are going to create a light source for the standing lamp, by first selecting the light “TPhotometricLight03”, copying and moving it to the standing lamp by the window, on the right hand side. This time, we are going to randomize its parameters.

Change its Filter Color to a lighter tone of yellow. Increase its Resulting Intensity to about 15000.0. Finally, decrease its radius to about 0.03. This will make its shadows somewhat sharper. Test render the changes (**Fig.07a – 07b**).

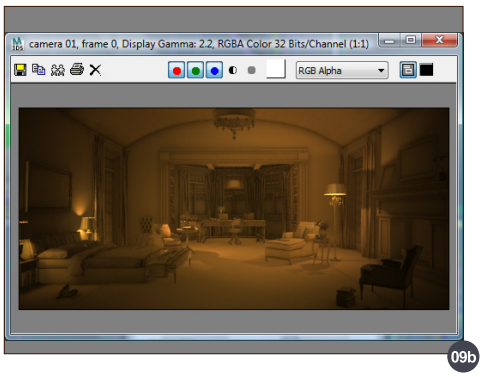

08a



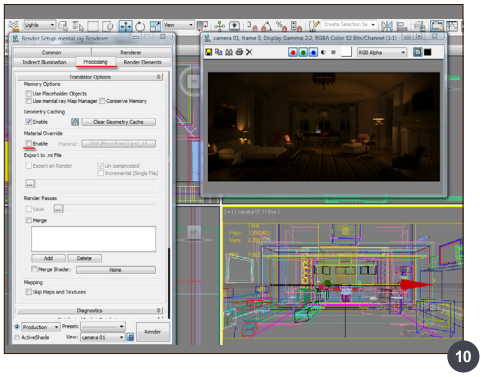
08b


09a

The next light source to create is the desk lamp close to the window. Simply select the light “TPhotometricLight04”, copy and move it to the desk lamp, close to the window. Again, randomize its parameters. Change its Filter Color to a different tone of yellow. Decrease its Intensity to about 3000.0; and its disc Radius to about 0.13 (**Fig.08a – 08b**)



09b


10

Finally, create the light source for the small table lamp, using the same approach discussed earlier (**Fig.09a – 09b**).

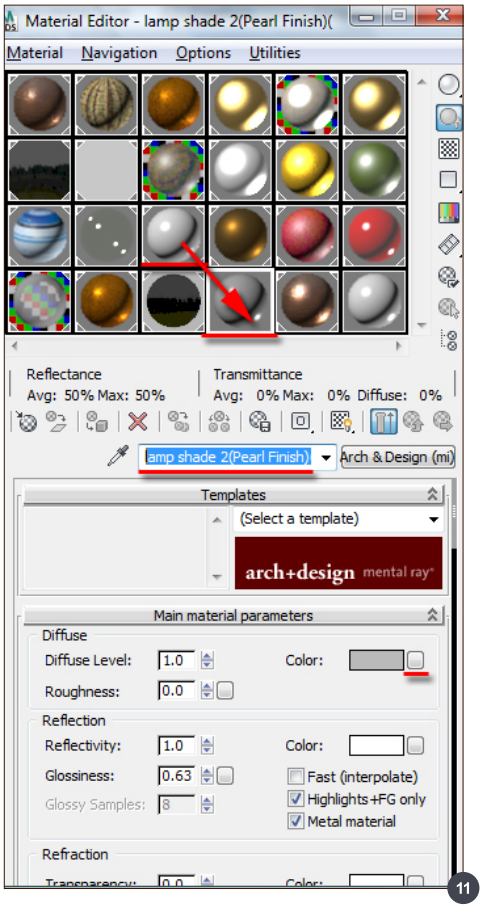
The overall brightness and depth are looking nice and balanced. Next, we are going to try our first render without the Material Override function.

Open the Render Setup dialog (i.e. **F.10**.). In the Processing parameters rollout, un-check the Material Override function, and test render (i.e. Shift+ Q) (**Fig.10**).

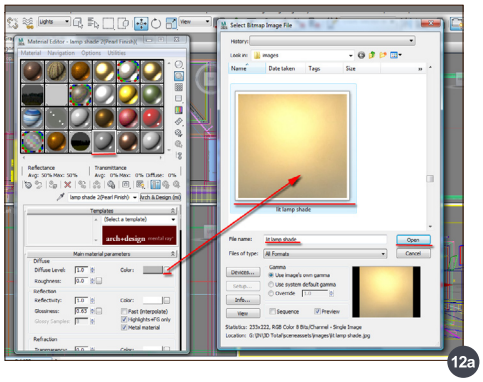
The render now has a nice contrasting look; however, if desired, one can increase the contrast even further by increasing the Shutter Speed value after the FG parameters have been cached.

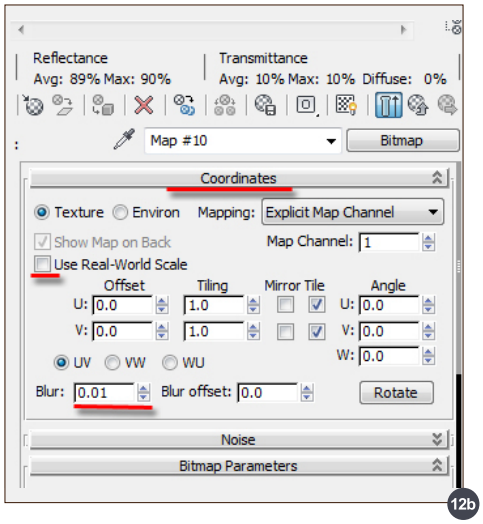
Next, we shall assign a nice dimly lit texture to the lamp shade, coupled with tweaking the Transparency and Glossiness values of the Refraction group shader.

Open the Material Editor dialog (M) and select the “lamp shade (pearl Finish) (mi)_13” material from the slot. Drag and drop it onto a new slot, to create a new material. Rename it “lamp shade 2 (Pearl Finish)”. Discard the content of its current Diffuse Color toggle (**Fig.11**).



11


12a



12b

Apply a new texture to its Diffuse Color toggle. Pick the texture under the name of “lit lamp shade.jpeg”. Once its Bitmap Coordinates are loaded, disable the Use Real-World Scale function, and decrease the Blur value to about 0.01. This will sharpen the texture (**Fig.12a – 12b**).

To saturate and brighten the color, we are going to apply the “composite” shader. Click on the Bitmap toggle and choose the “composite” shader from the Material/Map Browser dialog list. Choose to “Keep old map as sub-map?”, in the Replace Map dialog. The composite layers parameters should load up. Click on the Color

Correct This Texture toggle, to enter and tweak with its parameters (**Fig13a –13c**).

Inside the Color Correction parameters, pan down to the Color parameters rollout and increase the Saturation to about 8.97. Next, pan further down to the Lightness parameters rollout and enable the Advanced function.

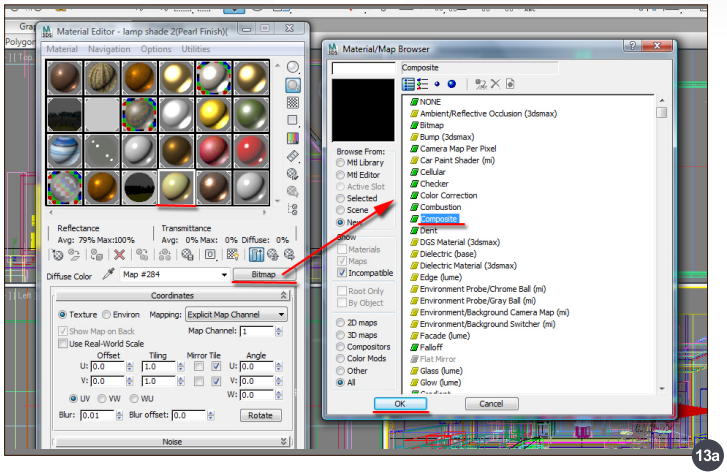
To maximize the impact of its appearance, first reduce the Gamma/Contrast value to about 0.7. This will add some contrast to the texture. Finally, increase its RGB value to about 200.0. This will increase the texture's brightness whilst retaining its depth (**Fig.14**).

Click on the Go To Parent button, to return to the main arch+design parameters. Lit lamp shades often have a matte translucent look to them.

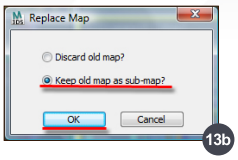
Do the following to emulate this effect:
1 - Decrease the Reflectivity, Glossiness and Glossy Samples to 0.0. This is to eliminate the effects of any possible glossy reflections.

2 - To add a bit of transparency, increase the Transparency value to about 0.1 or lower. Higher values will increase transparency.

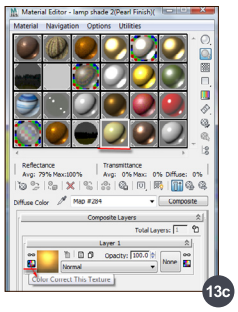
3 -To emulate translucency without massive increases in rendering times, simply decrease the Glossiness value to about 0.5; in the Refraction group.

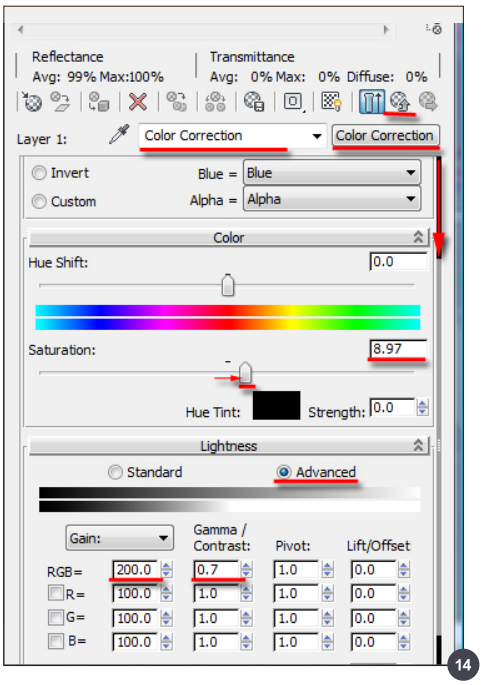


13a

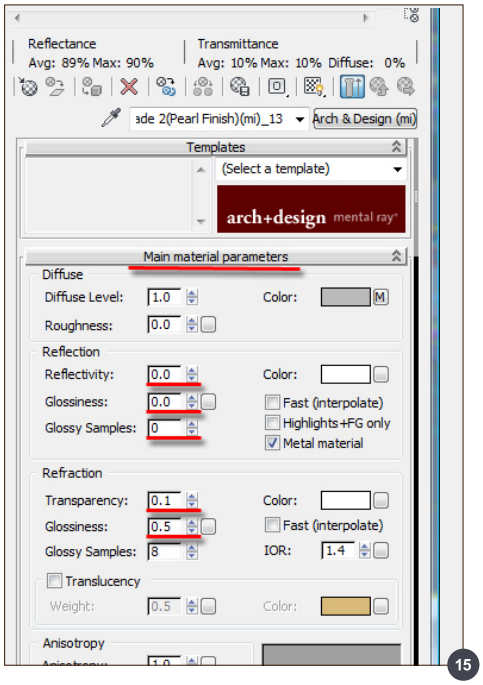


13b


13c



14

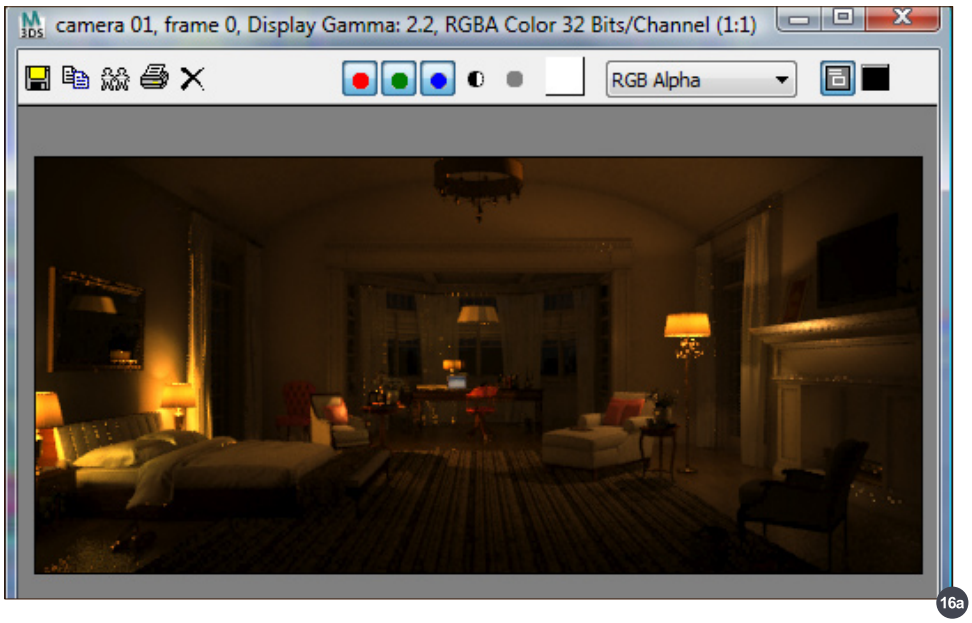


15

Note that lower values will further increase the blurriness of objects behind the lamp shade, and subsequently increase the rendering times. Moreover, decreasing the Glossiness to values lower than 0.5 will implicate increasing the Glossy Samples values, to prevent artifacts (**Fig.15**).

Assign this material to all lamp shades with photometric lights inside. Also, to add more realism, create a new material deriving from this shader (i.e. drag and drop it onto a new slot, and rename it), and randomize its composite RGB values.

Note that, for this scene values higher than 300.0 may result in an "overexposed" texture (**Fig.16a**).



16a

The scene now has a wonderful "romantic" feel to it. If still not satisfied, increase the Shutter Speed values, to darken the scene.

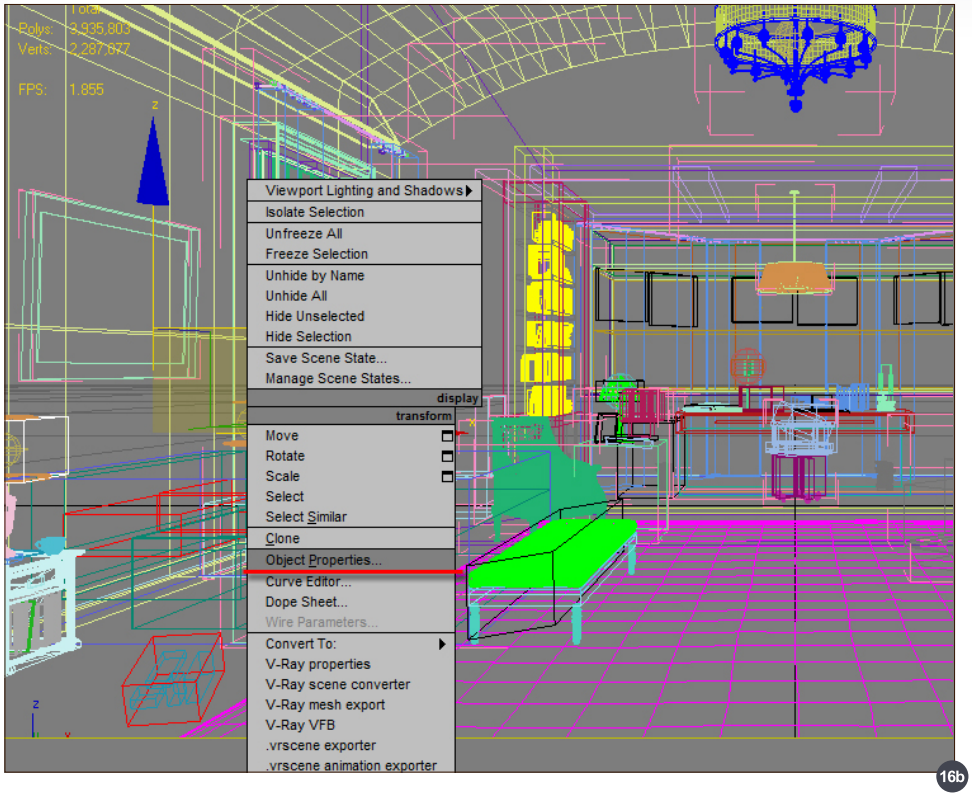
After the latest test render, some lighting artifacts have become apparent around the bed sheets and walls. This is mainly due to the energy being emitted by the photometric lights of the bed struggling to escape through the blurry transparency of the lamp shades.

There are two methods of tackling this issue: Increasing drastically most Final Gather values or setting the lamp shade objects to prevent the FG from passing through its transparency. The most efficient and less time consuming approach is the second option. Select the lamp shade object by the bed and open its physical properties by right clicking and selecting Properties from the popup menu list. Its object properties dialog should open. In the mental ray parameters rollout, enable the Return Black function from the Final Gather group. This will prevent the light energy from escaping through the blurry transparency, whilst presenting itself as translucent somehow (**Fig.16b - 16c**).

Next, we are going to instruct mental ray to cache the FG parameters and send out the final render.

Open the Indirect Illumination parameters rollout. In the Final Gather parameters, increase Initial FG Point Density" to about 0.7. This will add more depth to the scene and correct some of the final artifacts gathered. The value of 0.7 is usually okay for interior scenes. Higher values will substantially increase the rendering times. Increase the Rays per FG Point to about 150. Increasing this value shoots more rays and defines the scene, especially in darker areas. The value of 150 is often sufficient for interior scenes. Higher values will drastically increase the rendering times.

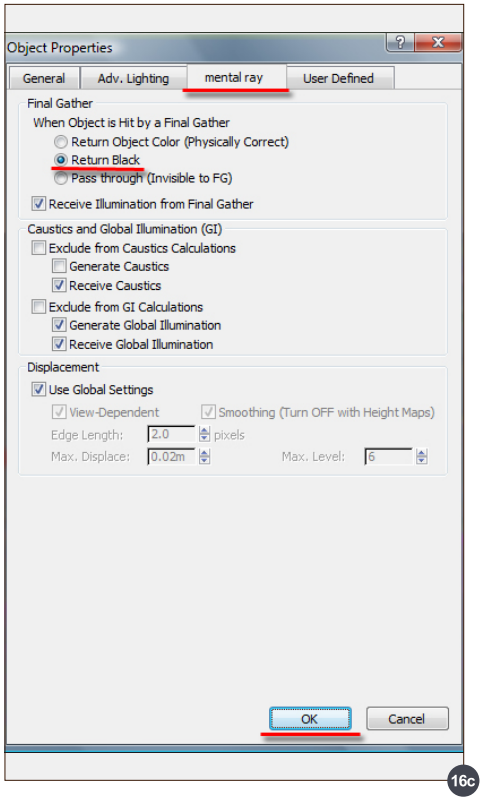
Due to most lights being emitted through semi transparent lamp shades, we are going to increase the Interpolate Over Num FG points



16b

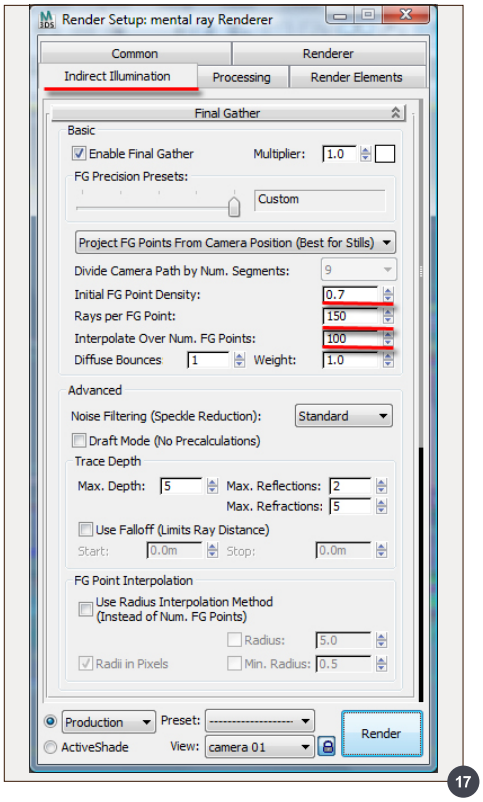
value to about 100. This will help correct any possible artifacts that may occur, as result of that, with little or no extra rendering time (**Fig.17**).

Pan down to the Reuse (FG and GI Disk Caching) parameters rollout.

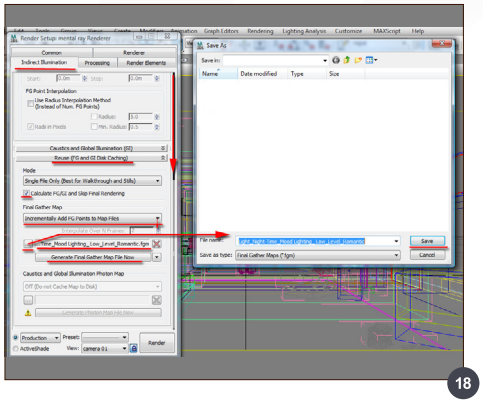


16c

Since we have an idea of the overall look of the render, we should now enable the Calculate FG/GI and Skip Final Rendering function.
In the Final Gather Map group, change it to Incrementally Add FG Points to Map Files. This function will incrementally cache the FG points whilst the Final Gather process is taking place.

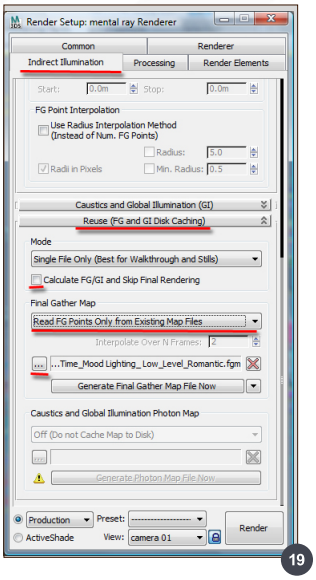


17

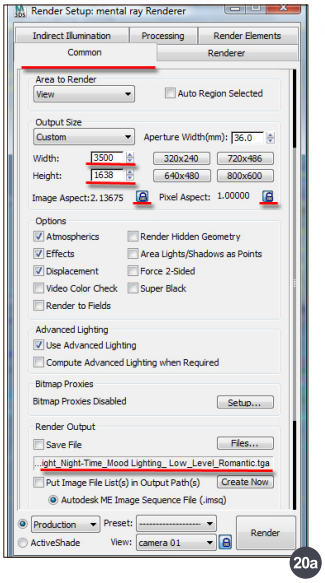


18

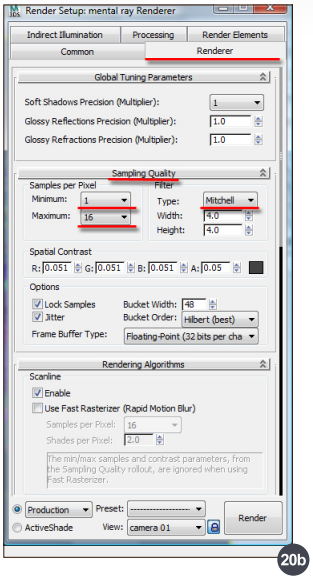
Click on the Browse toggle to set the location and the name of the FG map file to be saved. Finally, click on Generate Final Gather Map File Now to calculate and save the FG map (**Fig.18**).



19

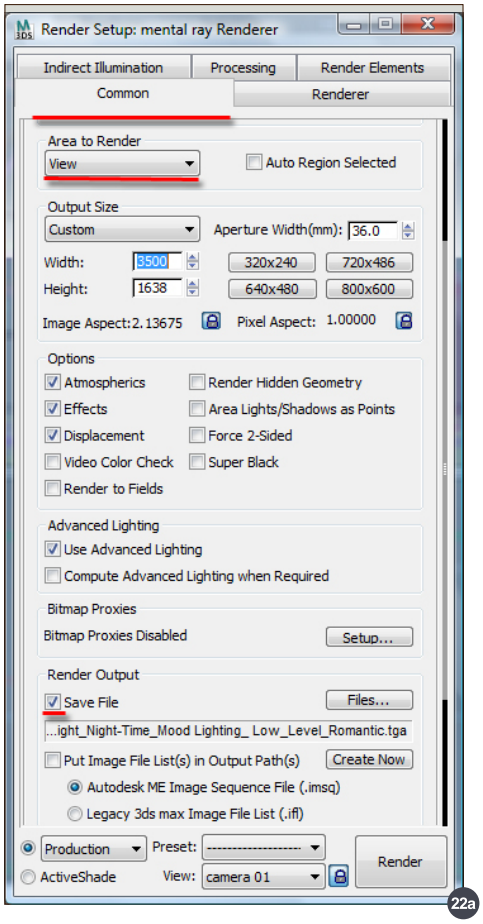


20a

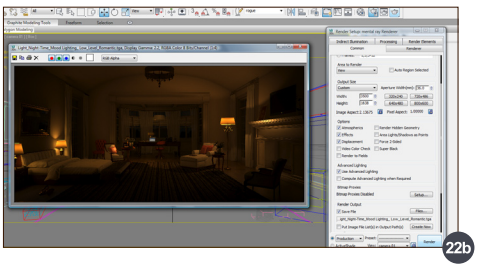


20b

Once the Final Gather process is completed, disable Calculate FG/GI and Skip Final Rendering function and set the Final Gather map to Read FG Points Only from Existing Map Files (**Fig.19**).



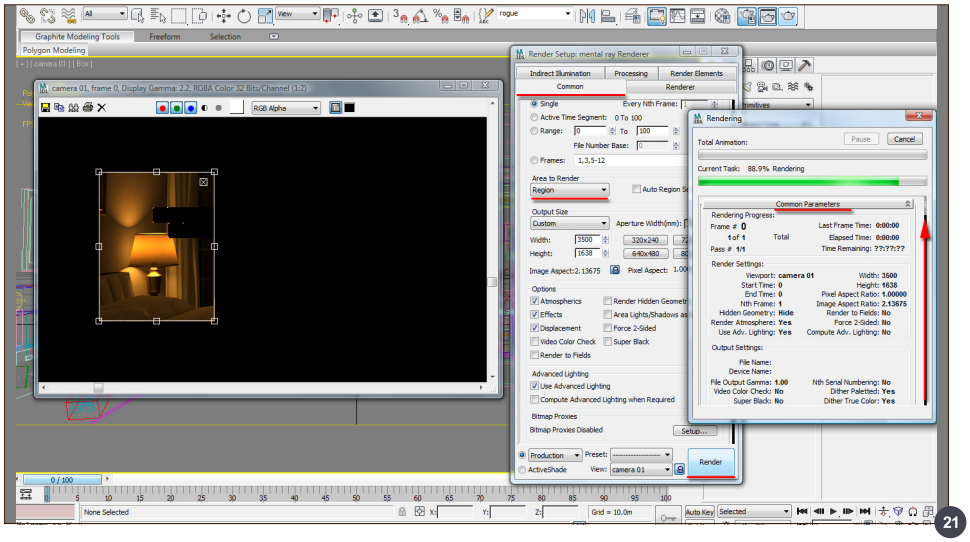
22a



22b

With everything set, it is now time to increase the final render size and adjust the general renderer parameters.

In the Common parameters rollout, increase the Output Size to 3500x1638 in width and height. Note that this size works well for printing however, at times, one may be required to go higher (i.e. 5000x2340 or higher). Also, set the Render Output file name, and location. In the Sampling Quality parameters rollout, increase the Minimum Samples per Pixel to 1, and the Maximum to 16. Finally, change the filter type to Mitchell (**Fig.20a– 20b**).



21

Prior to sending the final render, Region render crucial areas of the scene to assess the final quality. Region render the scene (Shift + Q). (**Fig.21**).

The glossy reflections are not accurate, in certain areas. To correct this, open the Renderer parameters rollout, and increase the Glossy Reflections Precision (multiplier) to 4.0. Back in the Common parameters rollout, change the Area to Render back to View. Finally, enable Save File and send the final render (**Fig.22a – 22b**).

## COMPOSITING IN PHOTOSHOP

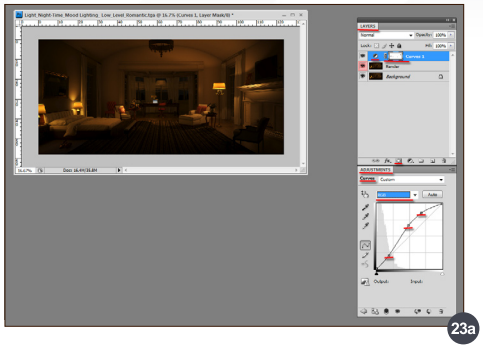
In this exercise, Photoshop will be used essentially to color grade and to adjust the levels of the image.

Open the "Light_Night-Time_Mood Lighting_ Low_Level_Romantic.tga" in Photoshop. Duplicate the Background layer and name it "render". In addition, change its color to red. It is recommendable not to work on the original layer. Changing the color of the layer often helps to distinguish layers at a later stage. To adjust the brightness simply add the Curves Adjustment Layer by clicking on its button and choosing it, from the pop up list. In the Adjustment Layer, add curve points with the cursor. The dark graph to the left depicts the darker areas of the image, and the rest are the brighter areas.

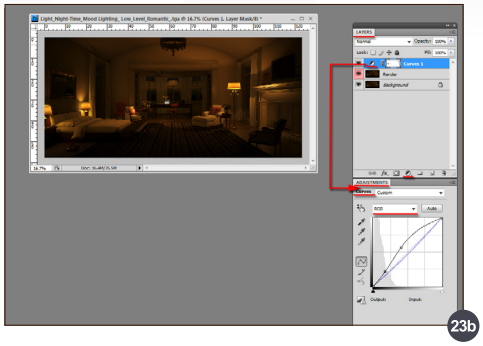
Add and move curve points to slightly adjust the image's bright and dark areas. Note the subtle changes on the balance of the image. Also, use Add Vector Mask to omit areas of the image (**Fig.23a**).

The next step is to color grade the image. It's common to have a tinge of yellow in artificially lit interior images. In the RGB color palette, choose "blue" from the list. Add a curve point in the centre of the curve and move it slightly down towards yellow. The image should now have a touch of yellow tint to it (**Fig.23b**).

To help accentuate and desaturate certain colors, we are going to add the Hue/Saturation Adjustment Layer.



23a



23b

To boost up the red tones, simply select the Red color palette and increase its Saturation to about +4. Also, decrease its Lightness to about -12. Note that although these values work well, one may try different values, if desired.

In the Yellows color palette, decrease its Saturation to about -10. In the Cyans, increase it to about +48. In the Blues, increase it to about +27. Finally, in the Master color palette, decrease the saturation to about -4. (**Fig.24**).

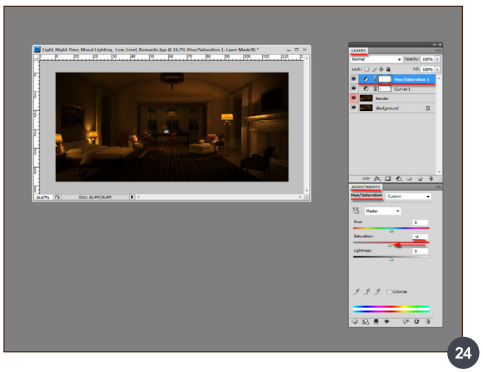
Evenings often have tones of blue to them, although it may not be apparent with the naked eye. Also, the blue tone will help to accentuate the romantic mood of the image. Create the Color Balance Adjustment Layer by clicking on its button. Increase its blue Midtones to about +40. Note how dramatic the image has become (**Fig.25**).

Although the image is already very appealing and romantic, one can still add an extra tone of blue with the Curves Adjustment Layer. Add a point to the centre of its curve and move it up slightly to bring out more hues of blue. The overall image now has a nice mix of blue and yellow tones to it (**Fig.26**).

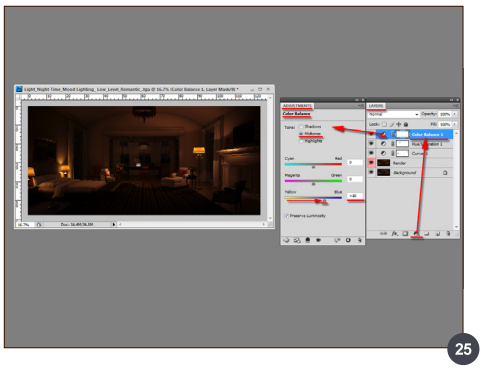
To add extra depth to the image, bring in the pre-rendered layer of Ambient Occlusion (i.e. AO), from the previous exercise.

Add it to the top of the Curves layer and use the Multiply blending mode to integrate it. Finally, use Add Vector Mask in conjunction with the Brush (B) tool to slightly omit the AO on undesired areas (**Fig.27**).

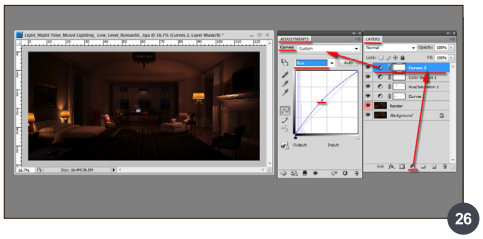
It is worth noting that one could have easily had emulated these Photoshop effects in mental ray however, it's prudent to use Photoshop for color grading, brightness, etc, as these effects are often under greater scrutiny for quick feedback by clients (**Fig.28**).



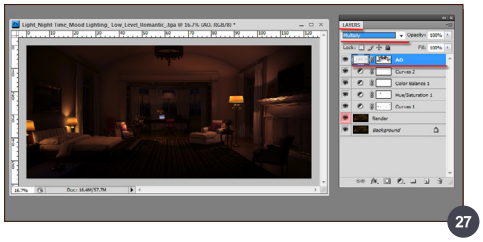
24



25



26



27

Scene created by:
VIKTOR FRETYÁN
Textures supplied by:
3DTOTAL TOTAL TEXTURES
Tutorial by:
JAMIE CARDOSO
For more from this artist visit:
http://jamiecardoso-mentalray.blogspot.com/
Or contact them:
jamiecardo@hotmail.com








# Environment Lighting

This five part series will focus on the topic of setting up a variety of lighting rigs that reflect natural lighting at different times of the day and manmade interior lighting. Each of the chapters will use the same base scene as a starting point, and will show a step by step guide to finding a lighting and rendering solution that best reflects the desired lighting situation.

The tutorials will explain the type of lights used and how to set up the parameters along with talking about the different methods of tackling the subject. The manipulation of textures may also be covered in order to turn a daylight scene into night scene for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.

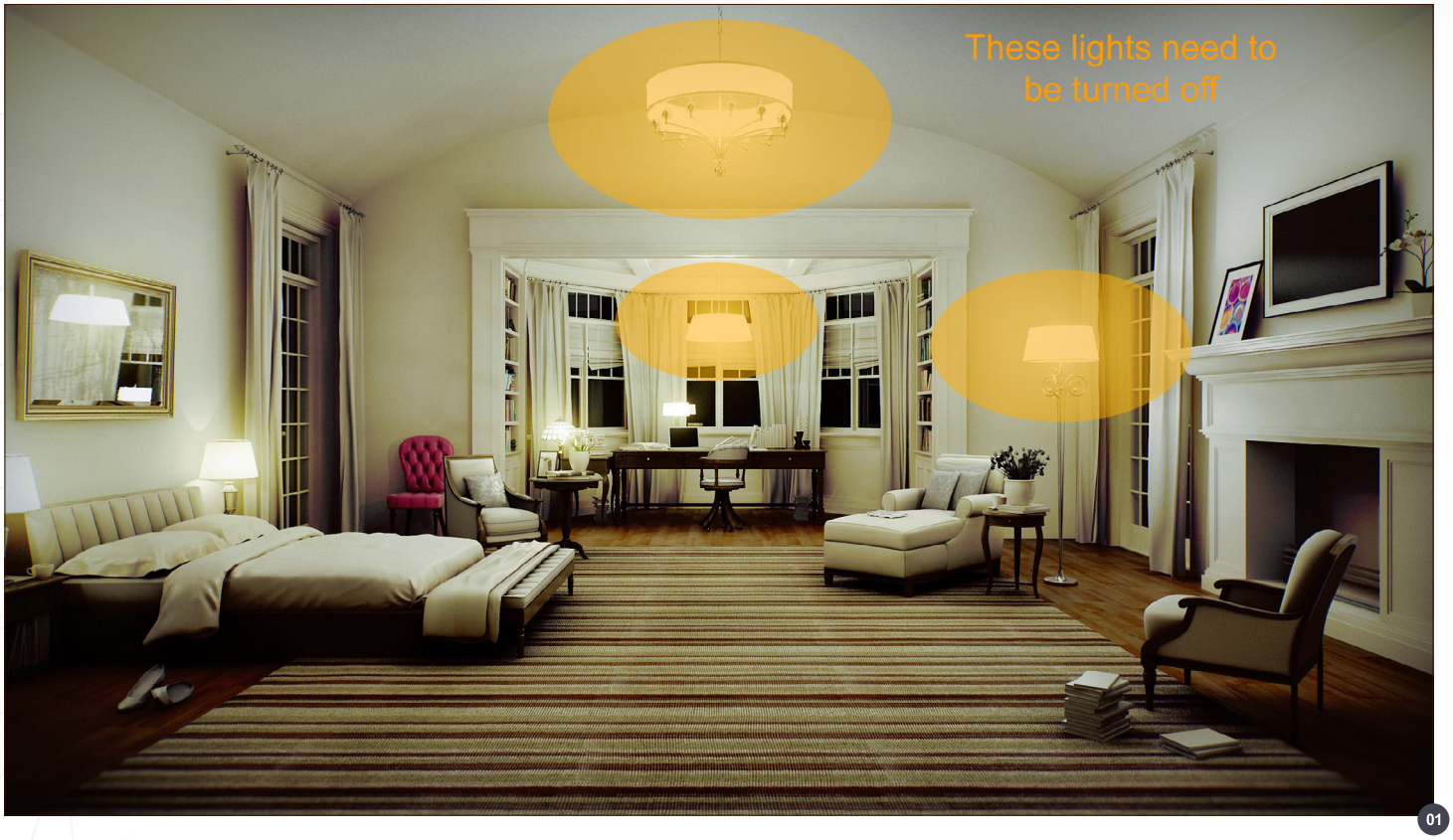
Chapter 1 | June Issue 058
Sunset / Sunrise

Chapter 2 | July Issue 059
Broad Daylight

Chapter 3 | August Issue 060
Artificial Light - Bright over head light at night

Chapter 4 | This Issue
Artificial Light (Night-Time) - Mood Lighting (Low-Level - Romantic)

Chapter 5 | Next Issue
TV-Lit (Night-Time) with Low-Level Lighting




01

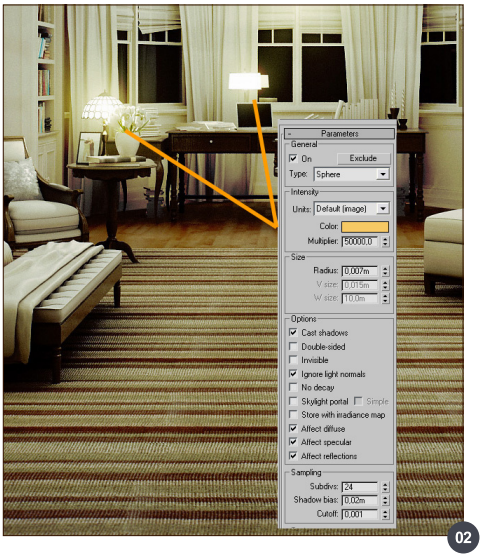
# CHAPTER 4 - ARTIFICIAL LIGHT

**Software Used:** 3ds Max + V-Ray

Welcome back! This part will be the most exciting chapter so far thanks to the light from the TV being mixed with the light from the other warm yellowish-orange light bulbs. This will make an interesting mix with the TV's cold bluish cyan colors. It will cause a nice duality in the scene.

But let's see where we left off last time. Overall the scene is too bright for now so we will have to switch off a few of the lights. I would prefer to turn off the ceiling light because it is the strongest light in the room. I will also have to switch off the standing lamp on the right. This is because I would like to put more emphasis on the mix of colors dividing the image into two parts: the right side will be the cold side and the left will be the warm (**Fig.01**).

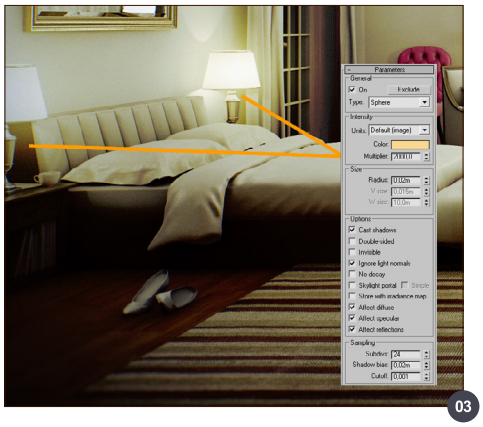
Like I said let's pick up where we finished last time. We have already set up all the small lamps around the room. They have a V-Ray light



02

sphere in them to imitate a light bulb. Just to refresh our memory let's see what the settings are for them (**Fig.02 – 03**). The other lamps are turned off as we established. Let's see what we have at this point (**Fig.04**). I think it looks okay already, so for now let's just leave it as it is! The rendering quality is a bit low for test renders but hopefully we will get rid of all the noise and unwanted blotches in the final stage.

What I especially love is the shadow on the wall above the red chair cast by the Tiffany lamp on



03

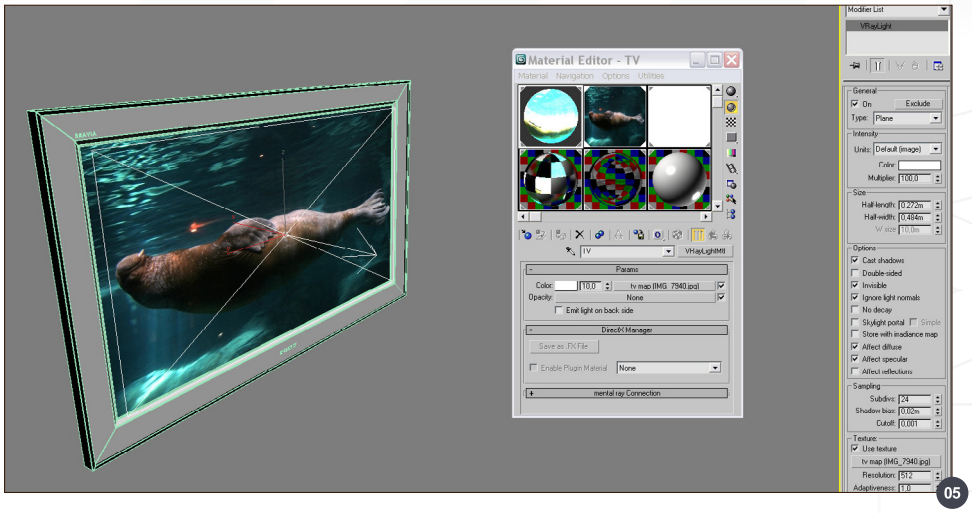


04

the small reading table. But overall the shadows are a bit too sharp in the other areas in the room I think. We could get rid of this but then we'd have to increase the radius of the V-Ray sphere. This would cause blurring of the shadows, which I adore as well so I'd rather leave it as it is now. If it was just a personal project I would do two versions, one with a larger radius on the whole

room, and another region render on just that part of the wall which would then be put together in Photoshop at the end.

Now let's move on by setting up the TV light. First thing is to switch off all the light sources in the room. This way we can only see the TV light. Now let's put a V-Ray Light Plane in front of the screen. It will get a bitmap for the texture slot. The same bitmap will be used for a V-Ray Light Material that will be on the screen. This image was provided by 3DCreative and luckily it's bluish so it will be good for the color of the light. The Intensity of the light is set to 100 and the Multiplier of the light material is set to 10 for the first try (**Fig.05**).



05

Let's see a render (**Fig.06**). It looks okay already but the TV could provide at least twice the light. So I have raised the Intensity from 100 to 200.


06

Other than that I think it's alright (**Fig.07**). I think it looks convincing enough. All the black areas are gone now, the light can reach every point of the room and still it remains dark so it's about the perfect amount.


07

Now we can render the image. All the lights have a Shadow Sample of 24 to prevent it from being too noisy. The Light Cache is on 1200, and the Hemisphere Sample of the Irradiance map has been increased to 150, while the Interpolation Sample is 80. I always use higher render settings for night scenes to get rid of the unwanted blotches on the walls, like I said before (**Fig.08**).

There. I think the render looks good, although the warm tones are a bit too strong so all the lamps light sources' intensity could have been reduced. But I will leave it like this because I know that Photoshop always adds a great deal of contrast to the image, so it's better to have a relatively bright raw render.

And after a little retouching the final outcome looks like this (**Fig.09**). I played around with the Gamma and Exposure settings and added some color balance too. Also I used the Knoll Light Factory plugin to get all those nice light bloom auras around the lighting sources.



08

Like always: thank you for reading and I hope you found this tutorial useful. Goodbye!




- Free Artist Final Scene

Tutorial by:
Viktor Fretyán
For more from this artist visit:
http://radicjoe.cgsociety.org/gallery/
Or contact them at:
radicjoe@yahoo.com



09



DOWNLOAD RESOURCES

- Free Scene & Textures
This download includes the artist final scene set up + textures

Scene Created by: Viktor Fretyán | Tutorial Written by Fredi Voß

# Environment Lighting

This five part series will focus on the topic of setting up a variety of lighting rigs that reflect natural lighting at different times of the day and manmade interior lighting. Each of the chapters will use the same base scene as a starting point, and will show a step by step guide to finding a lighting and rendering solution that best reflects the desired lighting situation.

The tutorials will explain the type of lights used and how to set up the parameters along with talking about the different methods of tackling the subject. The manipulation of textures may also be covered in order to turn a daylight scene into night scene for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.


Chapter 1 | June Issue 058
Sunset / Sunrise

Chapter 2 | July Issue 059
Broad Daylight

Chapter 3 | August Issue 060
Artificial Light - Bright over head light at night

Chapter 4 | This Issue
Artificial Light (Night-Time) - Mood Lighting (Low-Level - Romantic)

Chapter 5 | Next Issue
TV-Lit (Night-Time) with Low-Level Lighting

# CHAPTER 4 - ARTIFICIAL LIGHT

**Software Used:** Cinema 4D 11.5

## INTRODUCTION:

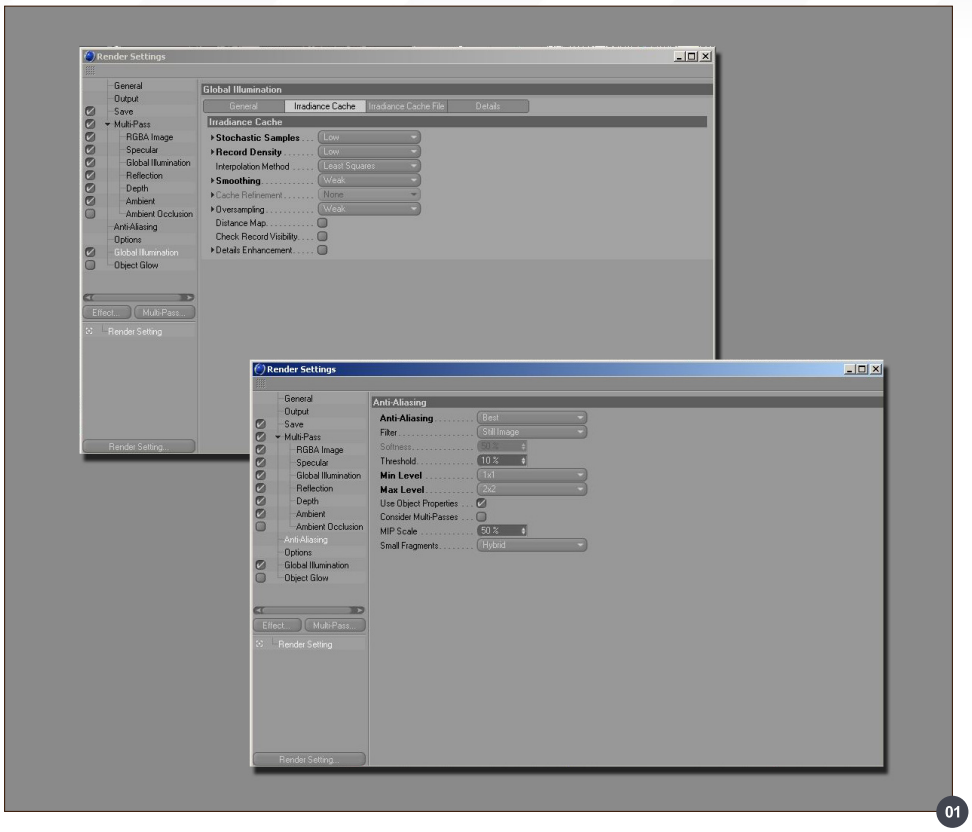
Hello and welcome to the fourth part of our new set of indoor lighting tutorials.

Just a little general information before we get started: The features used here are part of Advanced Render 3 of Cinema 4D release 11.5. Some elements can be reproduced in earlier versions of C4D, but in the earlier releases the Global Illumination feature is founded on completely different algorithms. So the results and settings might not fit in every way here.

On a technical front the memory footprints for rendering this scene might be quiet big so the usage of a 64 bit OS is recommended. The render performance is strongly dependant on the power of your hardware. So give yourself some time for rendering the final results. I'm always trying to find a balance between quality and render performance.

## RENDER SETTINGS

For the final rendering I used a width of 1600 pixels. This gives the smaller set details a good level of definition. The Anti-Aliasing is set to Best. For the work in progress images you can also use None or Geometry. Using the Multipass option for the final renderings might give you the opportunity to get the best result for your image at the end (**Fig.01**).

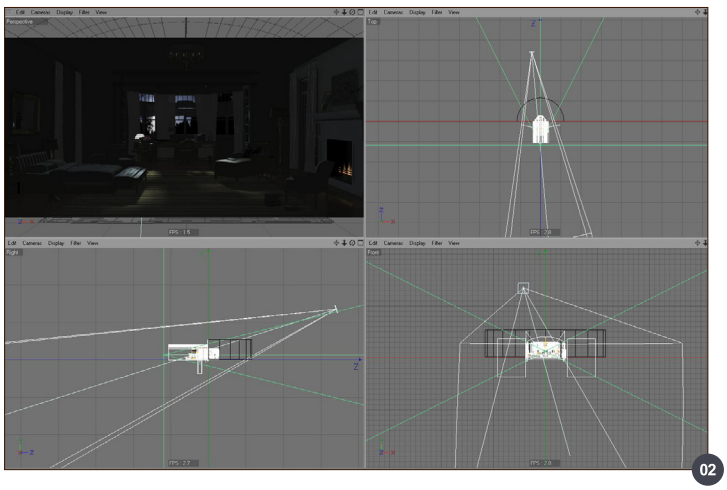



01

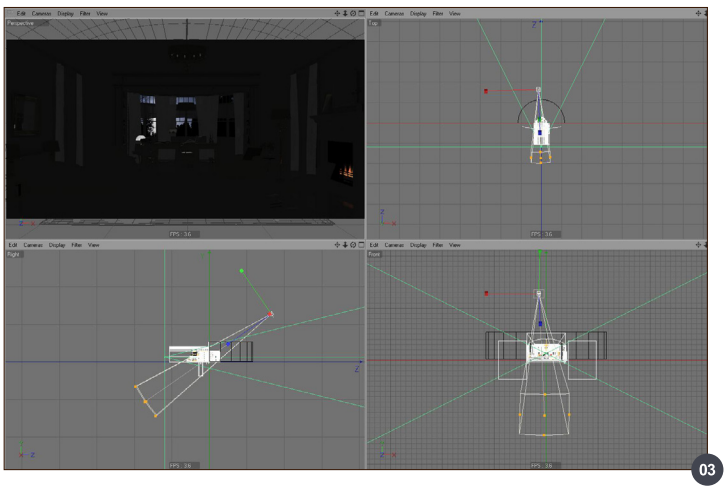
As in the third part of our series we have two main light source areas here: light coming from outside and light emitted by the different sources inside of the room. But this time the general brightness and color table of the light is much warmer and set to a lower level. For the lighting setup I'm using conventional light sources on one side and Global Illumination on the other, which is going to play an important role here. So let's have a look at the structure of the setup.

## MOONLIGHT

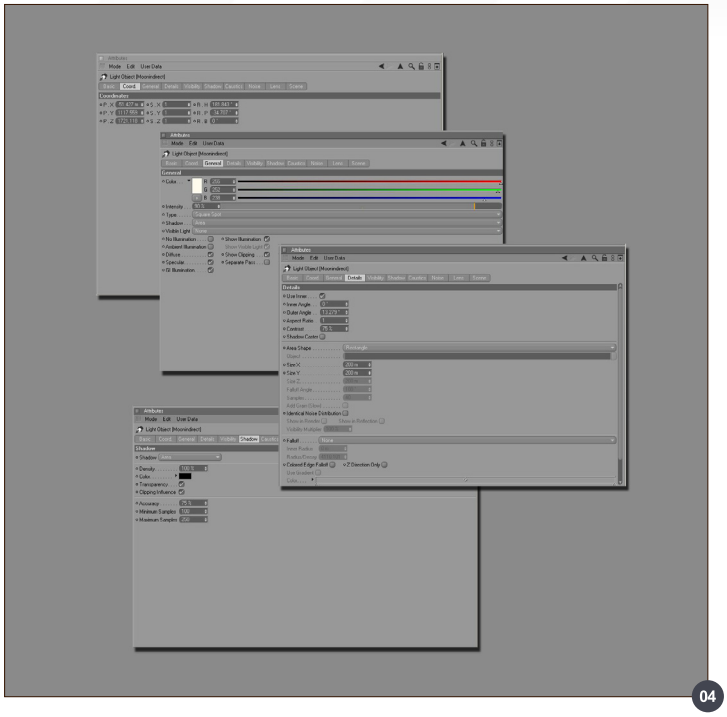
I have one light source which I called "Moonlight". The position is defined according to the HDRi map in the background. In this case I used the normal HDR image and scaled it to night-time. That's one of the big advantages of using expanded color depth in high dynamic range images. The moonlight itself has a slightly blueish color tone and is created by a square spot shining through the windows. For an easy way of finding a perfect focus point I used a target tag. In order to get a more prominent stroking effect on some objects in this scene I added a light source which I called "Indirect Moonlight". This gave more control over the definition of the tiny structures on top of the desk and the chair standing in front (**Fig.02 – 06**).

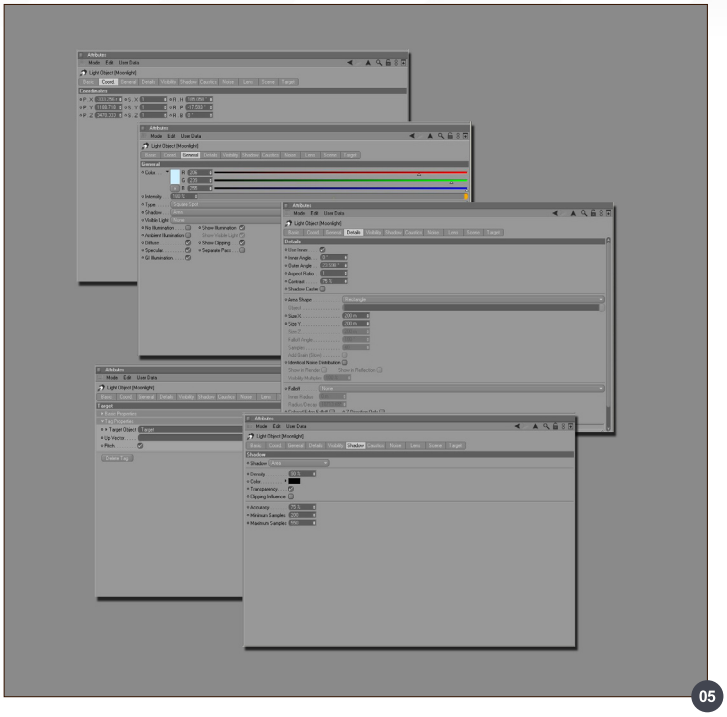


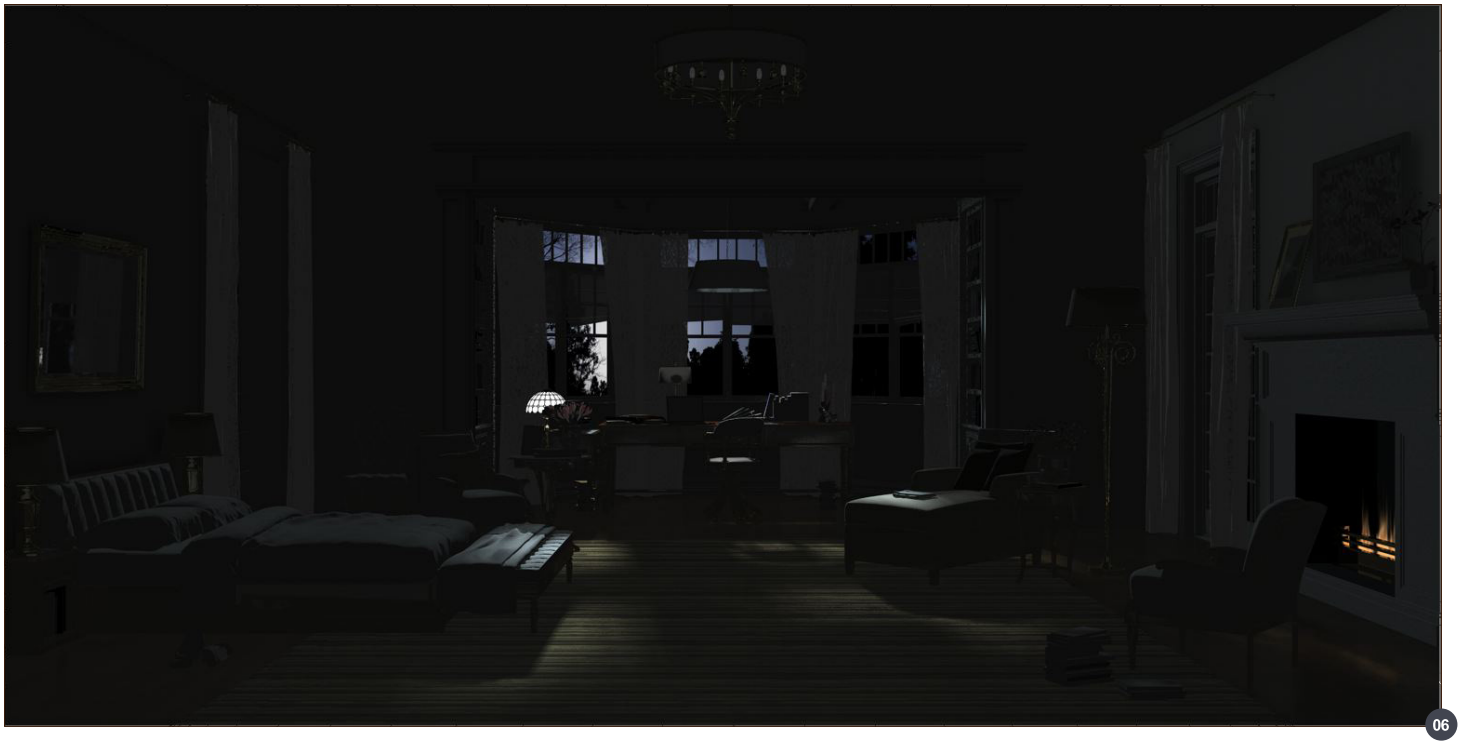
02



03


04


05


06

## ARTIFICIAL LIGHTS

These light sources are carrying the mood of this set. They are illuminating the scene itself, but the way they are positioned and the settings are important for the general appearance of our image. Unlike the chapters before this the number of lights, or let's say visible light sources, is very limited. We have the candles, the fire place and one lamp standing on the small table beside the plant.

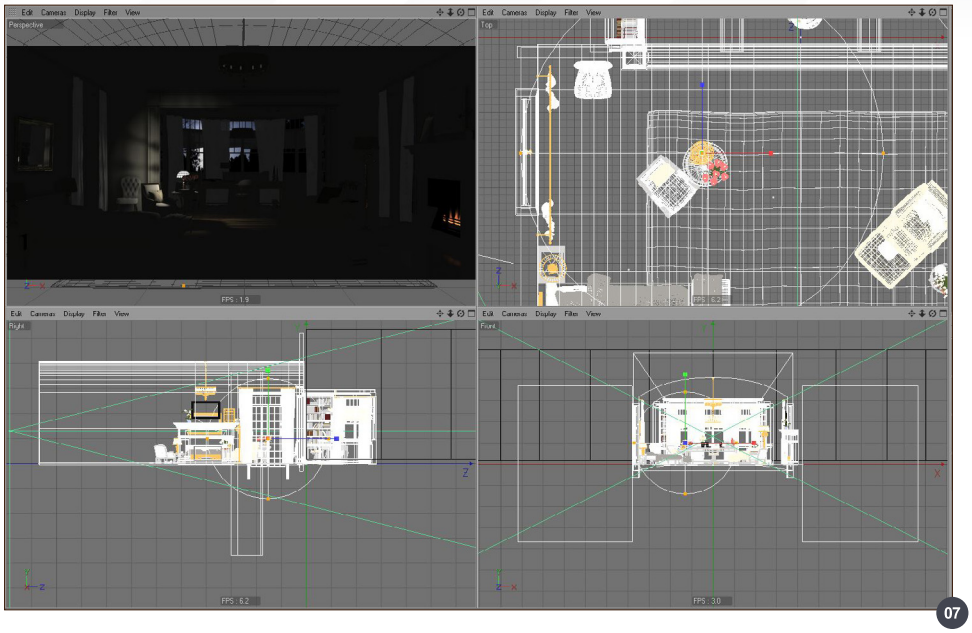
The strength of these light sources is adapted to work with Global Illumination at the end. So the single passes might look quiet dark, but for the editor views I deactivated the GI feature to get a better impression of the nature of every light source.

## THE TIFFANY LAMP

In reality the shades of every active lamp are illuminated themselves, and if they are made of translucent materials they work as a kind of light emitting object as well. I created some materials to simulate this effect in different variations. In some cases I used compositing tags to deactivate the shadows caused by this objects for a better look. In the case of the Tiffany lamp, the glass elements of the shade do not cause any shadows.

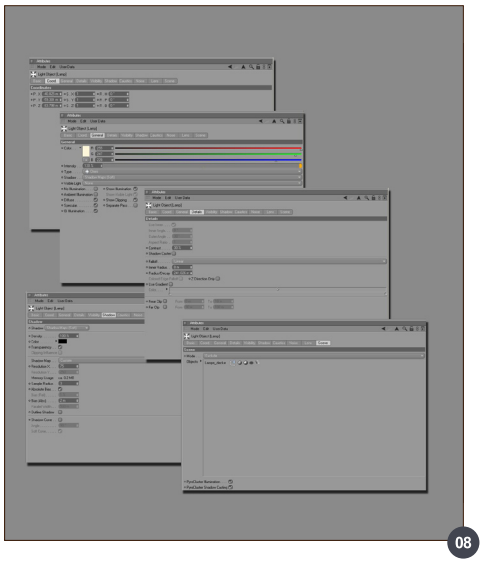
The color range of the Tiffany lamp is settled in a slightly yellowish area. I wanted to create a warm and cosy mood (neon light would not be appropriate here).

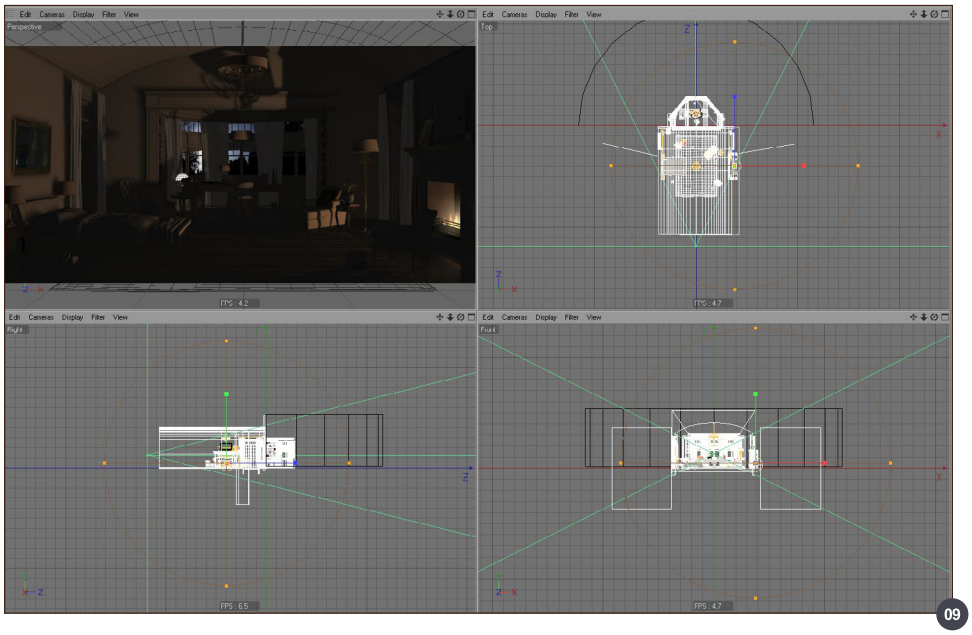
I liked the way it's shadows worked in the scene here. In general it is very important to decide which lamps should be used in this environment. They have to be placed well in order to get a good composition and to support to the atmosphere of such an image (**Fig.07 – 08**).

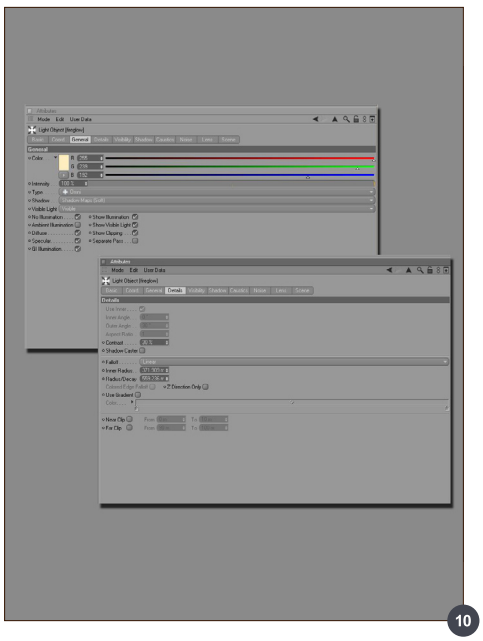

07

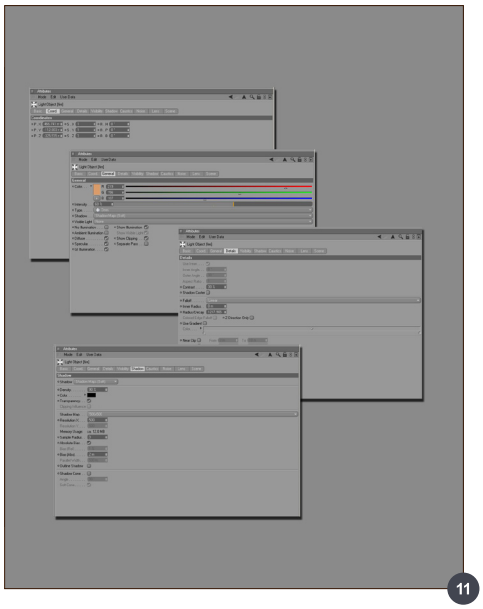
## FIRE

The fire place is definitely one of the main light sources here. The light works on the objects softly and pushes the scene to an extra moody level.


08


09

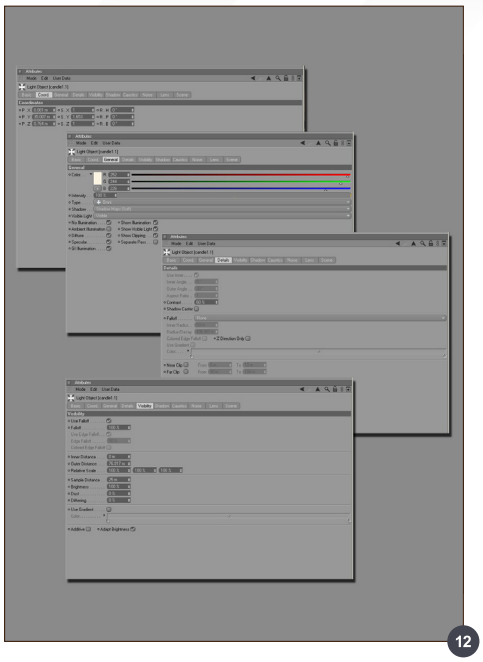

10


11

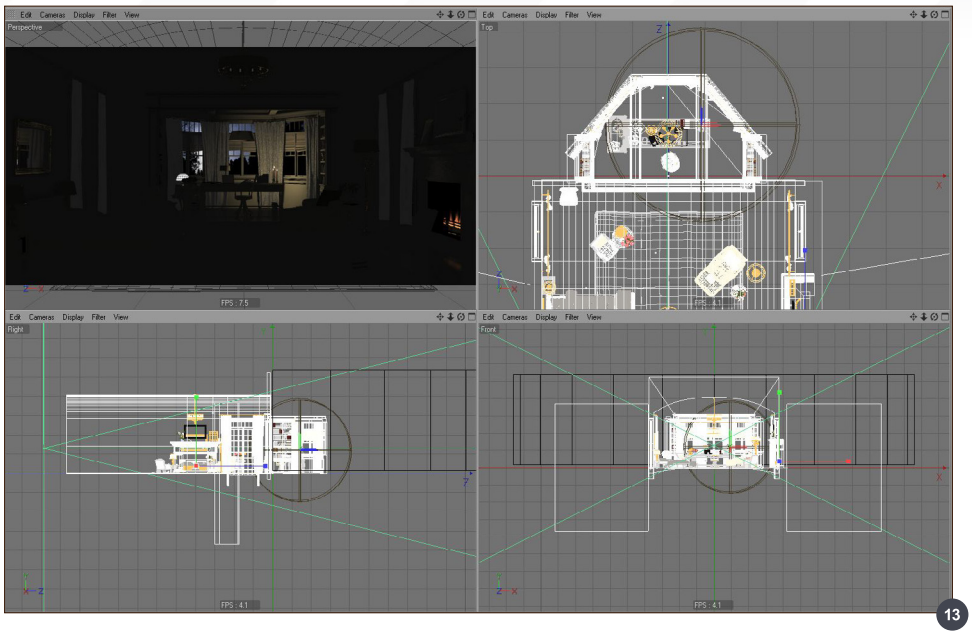
I used omni lights for the fire. In most cases spots do a very good job, but in this case omni lights were my first choice.

The light coming from the fire is very warm and causes typical shadows to appear on the walls and the ceiling.

To get a certain amount of visibility and an indication of energy coming from the fire, I added a visible light in the same position. The light is visible, but doesn't actively illuminate the scene (**Fig.09 – 11**).



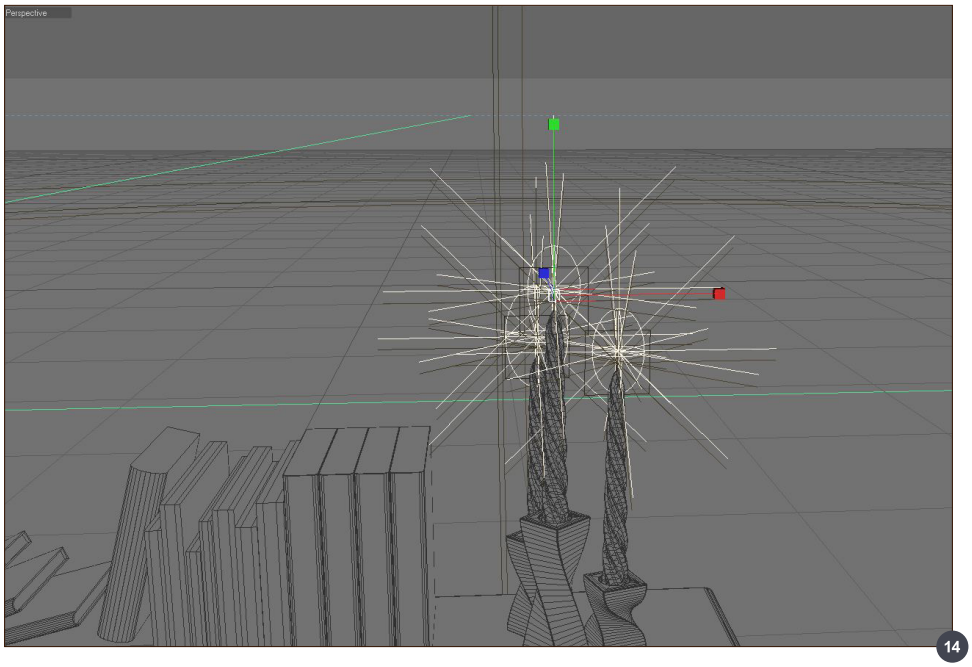
12



13

## THE CANDLES

Well, every moody image needs candles of course. The second editor shot demonstrates how they were positioned in relation to the meshes of the candles. Again, for the candle I used one active invisible and one inactive visible light. This combination gives you more flexibility and separates the visible flame from the light influencing the objects in this set. The light indicating the flame was stretched along the y-axis (**Fig.12 – 15**).

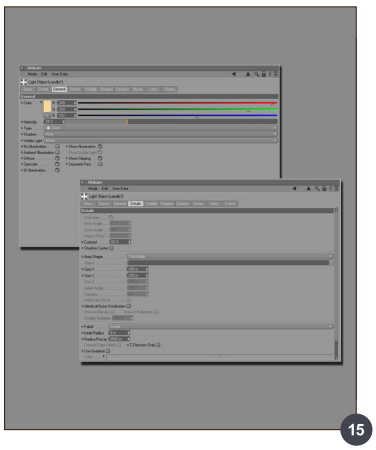


14

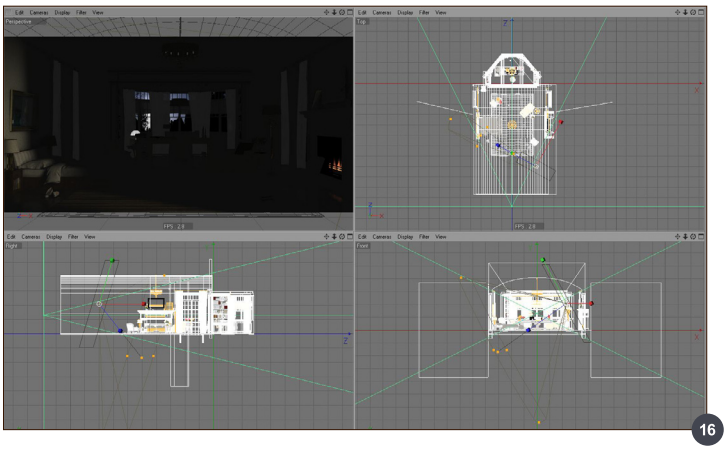
## BOUNCING LIGHTS

For further “corrections” I added three bouncers here. The other way to go would be to increase the diffuse depth of the GI later, but that definitely would have a negative effect on the render time, so this is how I solve this kind of problem.

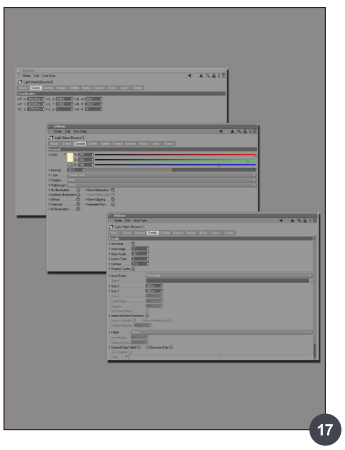
Again, using exclusions for objects is a very handy thing to get exactly the result you wish for. Additionally using these bouncing lights delivers more modulation on the surfaces. In reality you always have this kind of “fuzziness” (**Fig.16 – 21**).



15



16

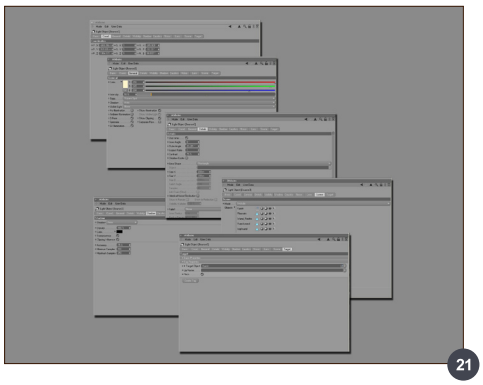


17

## Global Illumination

Now it is time to get the rest of the illumination by GI.

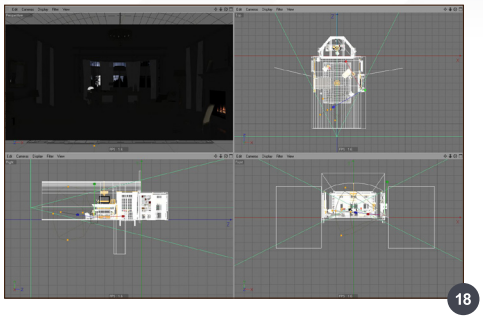
For a satisfying effect I used a Diffuse depth of 2 with a primary Intensity of 85% and a secondary of 40%. For a quicker preview you can set the Record Density to Preview level. The preview render looks quite satisfying even with these low parameters. This kind of illumination produces less visible artefacts, unlike others in this series of tutorials (**Fig.22**).



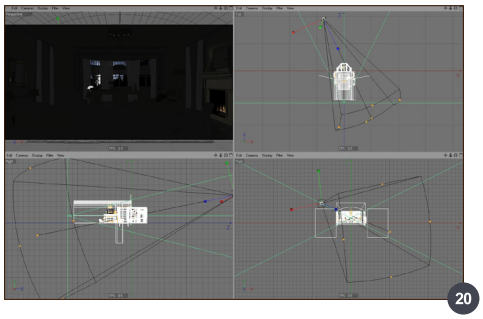
21



22



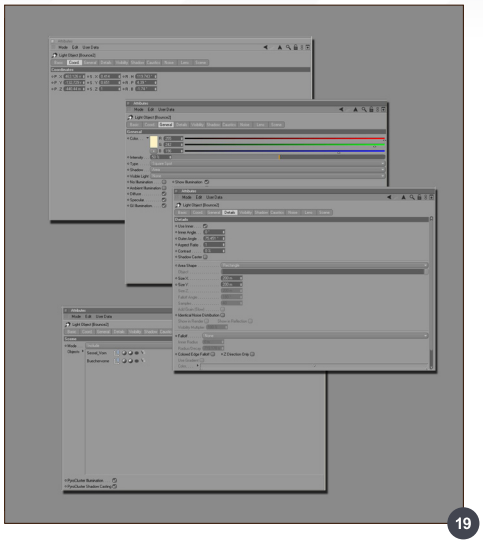
18



20

## Final Rendering

The final image was edited in Photoshop for color grading and fine tuning. The Multipass option delivers channels like the depth channel and the reflection pass separately. But there are a lot of possibilities to get a satisfying result. With the final render settings and a bit of post work our image could now look like this. You can increase the quality settings of course. It just depends on how much time you are willing to spend on the render and your machine's performance (**Fig.23**).



19

So have fun and good bye for now, Fredi.

Scene created by:

### Viktor Fretyán

Textures supplied by:

### 3DTotal Total Textures

Tutorial by:

### Fredi Voss

For more from this artist visit:

http://fredivoss.cgsociety.org/gallery/

Or contact them:

vuuxx@gmx.de



23



Maya + mental ray

DOWNLOAD RESOURCES

- Free Scene & Textures
This download includes the artist final scene set up + textures

Scene Created by: Viktor Fretyán | Tutorial Written by Luciano Iurino

# Environment Lighting

This five part series will focus on the topic of setting up a variety of lighting rigs that reflect natural lighting at different times of the day and manmade interior lighting. Each of the chapters will use the same base scene as a starting point, and will show a step by step guide to finding a lighting and rendering solution that best reflects the desired lighting situation.

The tutorials will explain the type of lights used and how to set up the parameters along with talking about the different methods of tackling the subject. The manipulation of textures may also be covered in order to turn a daylight scene into night scene for example, as well as a look at some useful post production techniques in Photoshop in order to enhance a final still.


Chapter 1 | June Issue 058
Sunset / Sunrise

Chapter 2 | July Issue 059
Broad Daylight

Chapter 3 | August Issue 060
Artificial Light - Bright over head light at night

Chapter 4 | This Issue
Artificial Light (Night-Time) - Mood Lighting (Low-Level - Romantic)

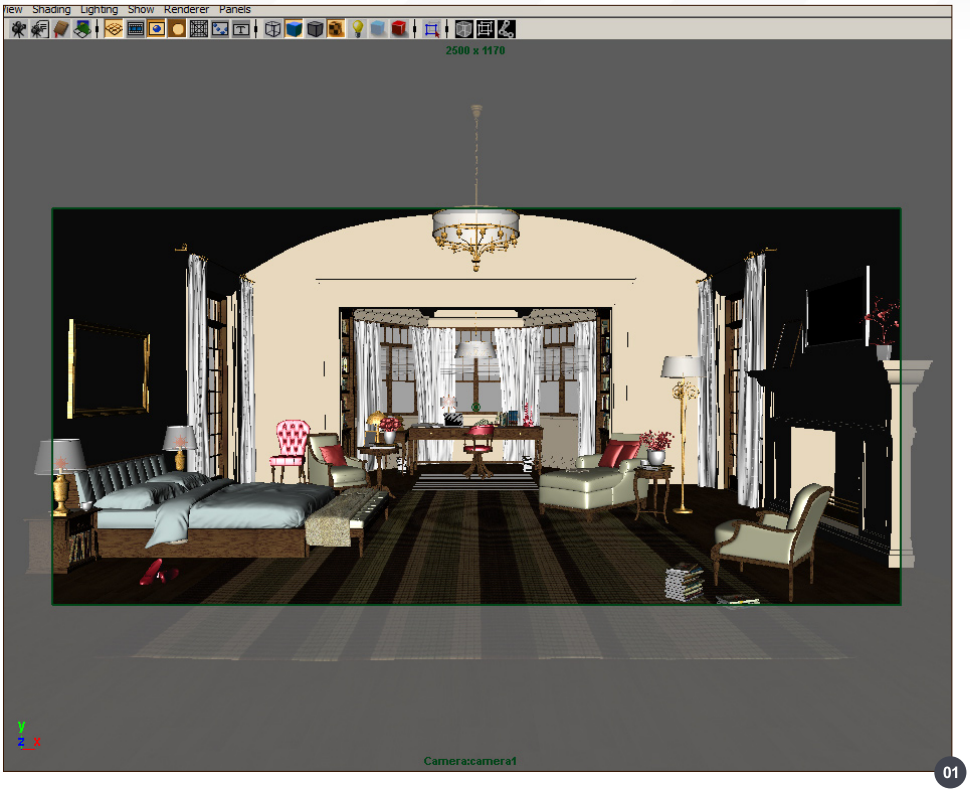
Chapter 5 | Next Issue
TV-Lit (Night-Time) with Low-Level Lighting

# CHAPTER 4 - ARTIFICIAL LIGHT

**Software Used:** Maya and Mental Ray

Welcome to the fourth part of the Interior Lighting Tutorial. This time we'll be creating "mood lighting" with soft, warm lights.

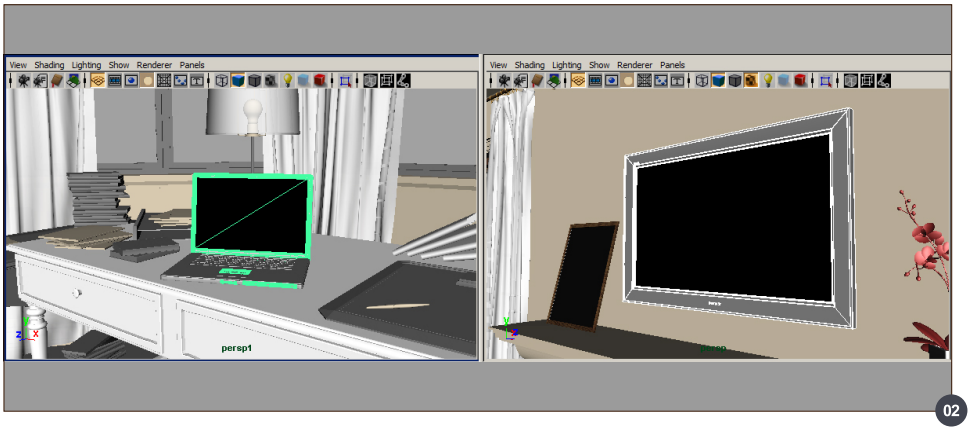
Open the "NightTime02_START.mb" scene file (**Fig.01**).



01

The scene is pretty much the same as for the other parts of the tutorial. The only difference is that both the laptop and TV screen materials have been blackened out; since we want a "romantic" atmosphere we're going to turn them off (**Fig.02**).

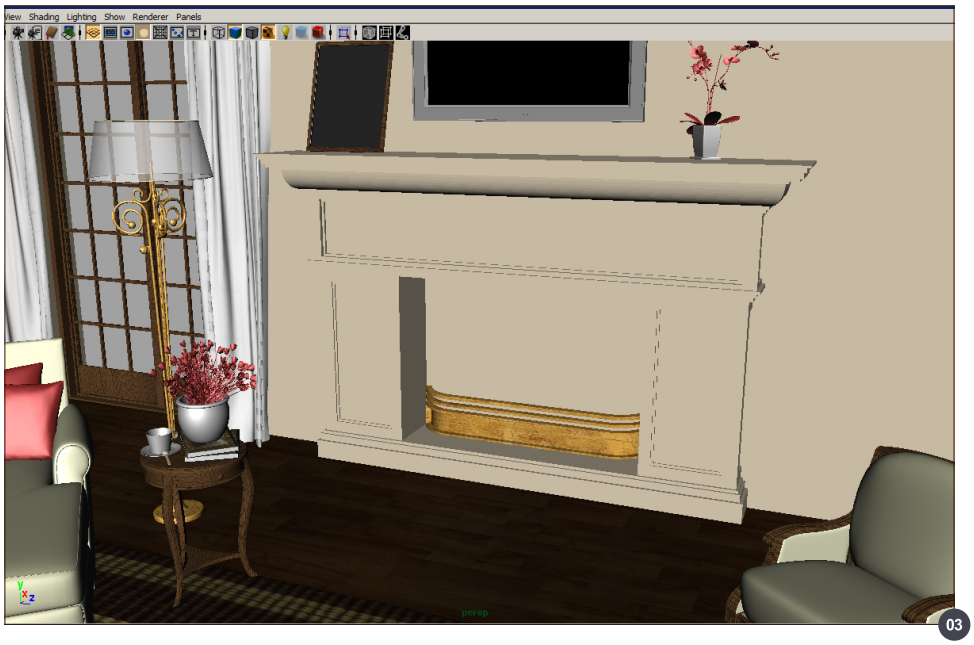
This time our main light source will be the big fireplace in the middle of the room (**Fig.03**).



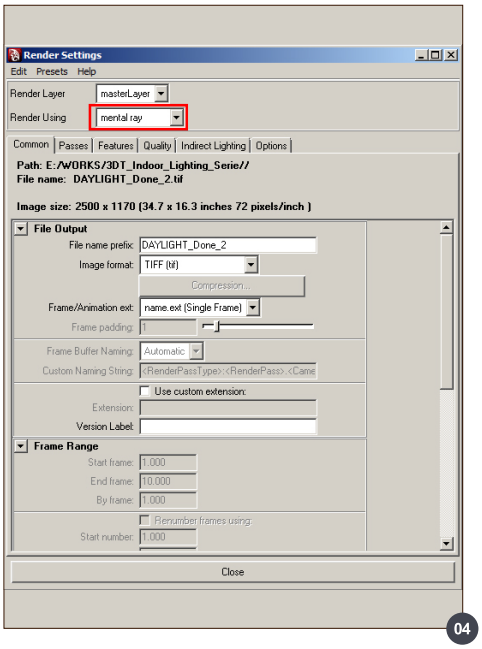
02

Before we can start dealing with the lights themselves, make sure that you're using the mental ray renderer. Open the Render Settings panel and pick mental ray from the drop-down list next to Render Using (**Fig.04**).

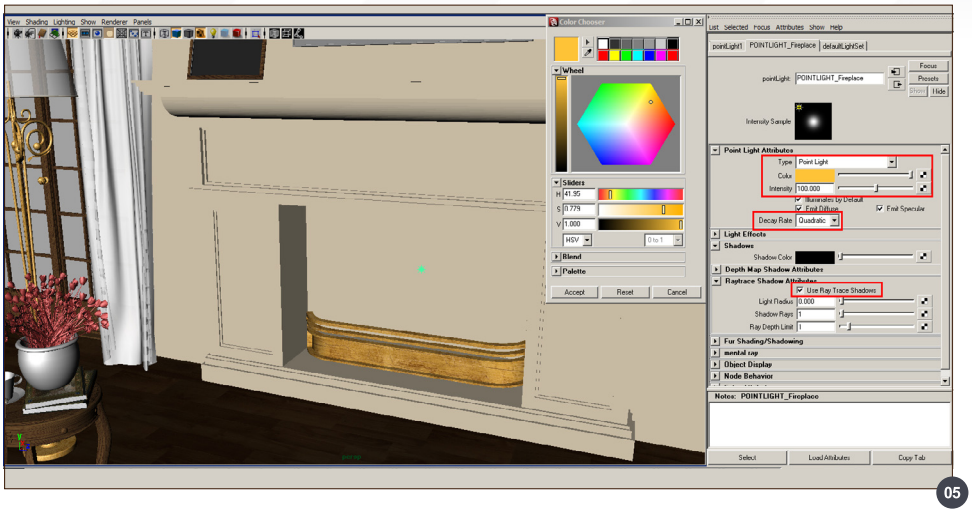
Now create a Point light and position it right into the fireplace. Set its color to a full reddish-orange. Set it's Decay Rate to Quadratic and its Intensity to something like 100. Also, make

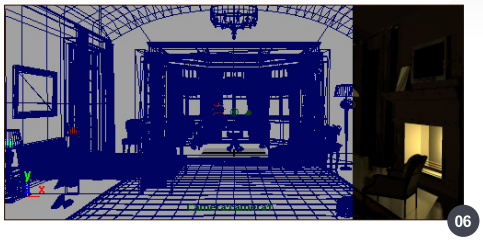


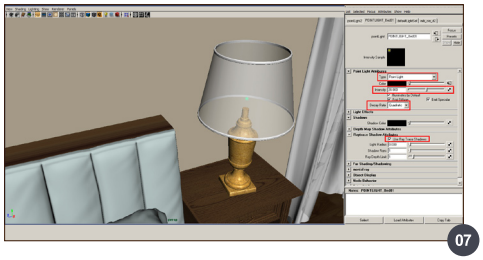
03



04





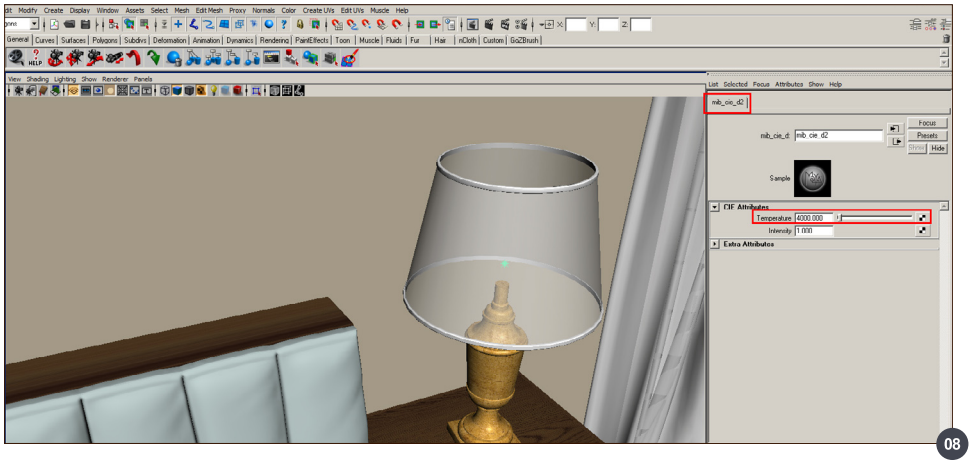


sure to enable Raytrace Shadows for this light (**Fig.05**).

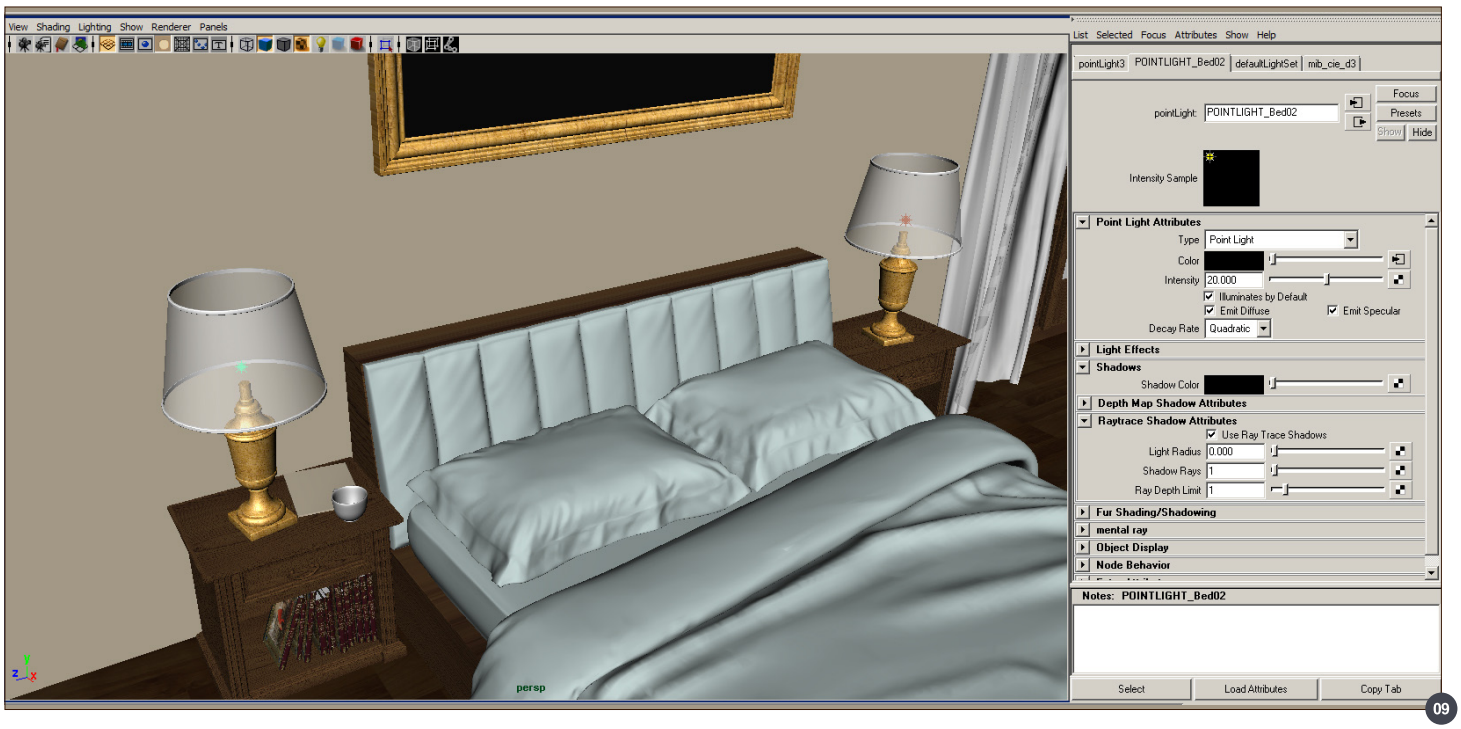
Let's do a quick test render (**Fig.06**). The light is coming from the fireplace and it's correctly casting sharp shadows all over the room.

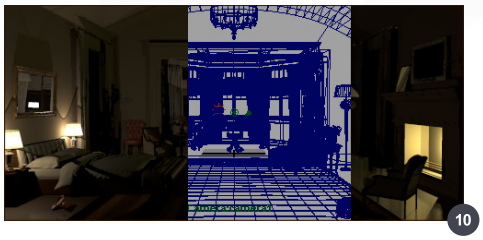
Now we need a couple other lights in the bed area. Create a new Point light and position it right into one of the bed lamps, as shown in (**Fig.07**). Set its Intensity to 20 and its Decay Rate to Quadratic. Enable Raytrace Shadows for this light as well.

This time we won't use a simple color for the light; instead, we'll plug a "mib_cie_d" node into its color channel. This particular node allows you to set a light's color warmer or colder using a Temperature parameter. In this case, a value of 4000 (warmer) was used for the light (**Fig.08**).



Now repeat the process and add another point light into the other bed lamp. Do all the previous steps, included connecting the "mib_cie_d" node into its color channel (**Fig.09**).





10

Let's do another quick test render (**Fig.10**).

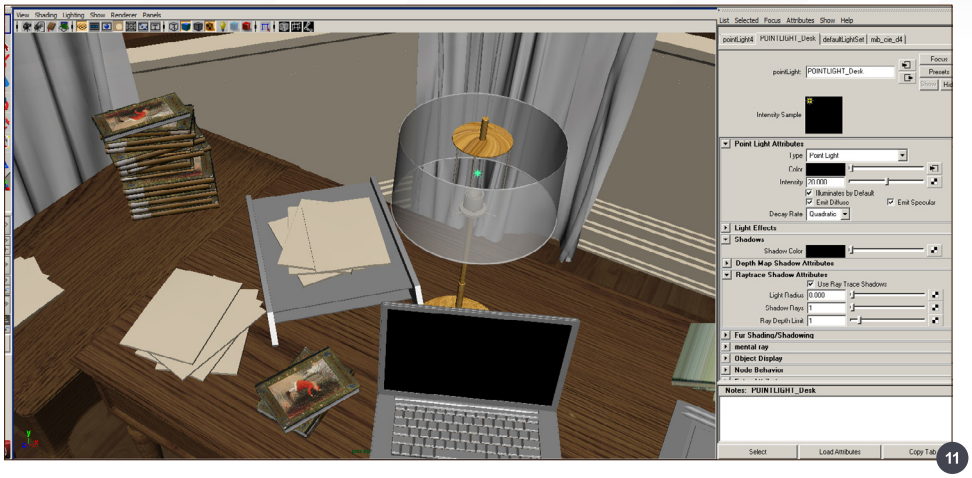
Now let's take care of the back of the room. Here we need a soft light on the desk. Create another Point light and position it into the desk lamp (**Fig.11**). Set its Intensity to 20 and its Decay Rate to Quadratic. Enable Raytrace Shadows.

Plug a "mib_cie_d" node into the color channel, but this time use a colder Temperature value like 4500 or 5000 (**Fig.12**).

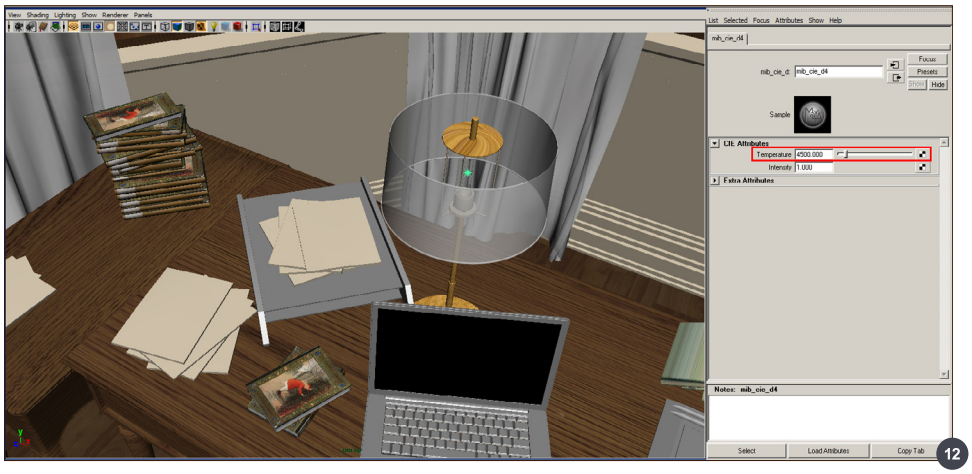
Now let's do a complete test render to see how it's going (**Fig.13**). We have a fair amount of light in the room, but there are still too many dark areas.

Go back to the Render Settings panel and switch to the Indirect Lighting tab. Enable Final Gathering and set its Accuracy to a low value (100) for the moment. Set the Point Density to 2 and the Point Interpolation to 100 (**Fig.14**).

Render the scene again. Now we have more light bounces all over the room (**Fig.15**). To



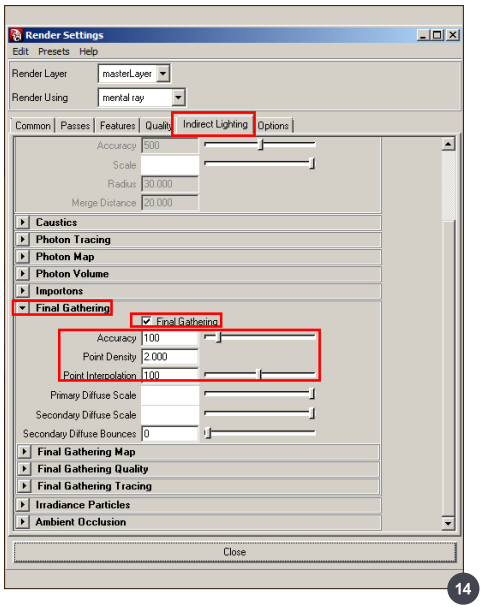
11



12



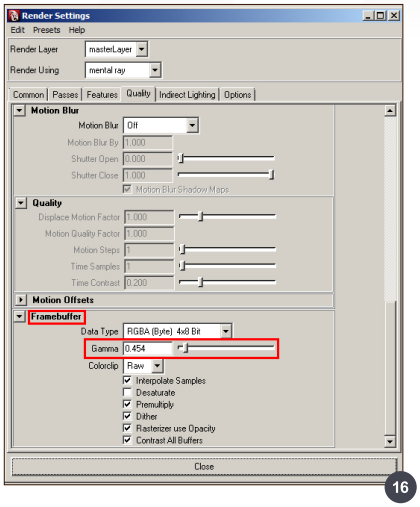
13



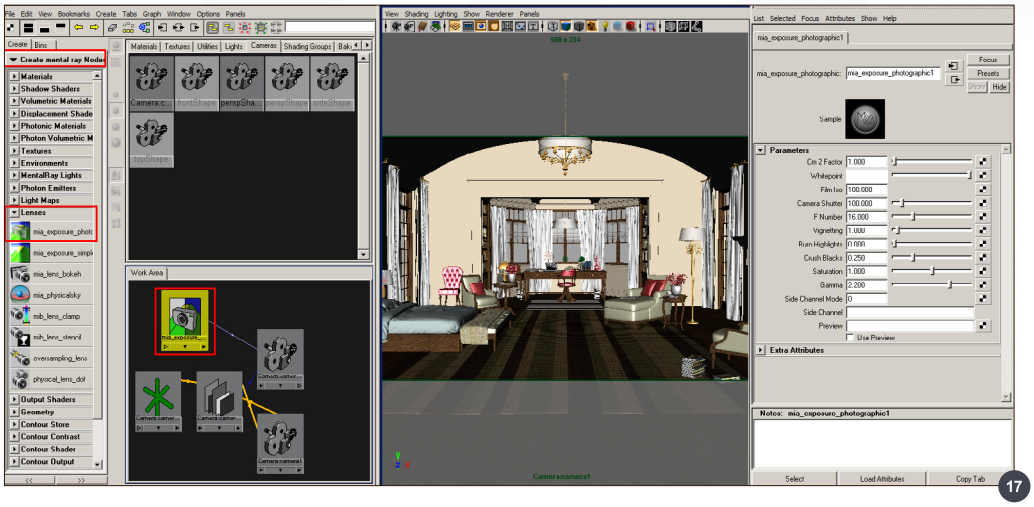

14



15




16




17

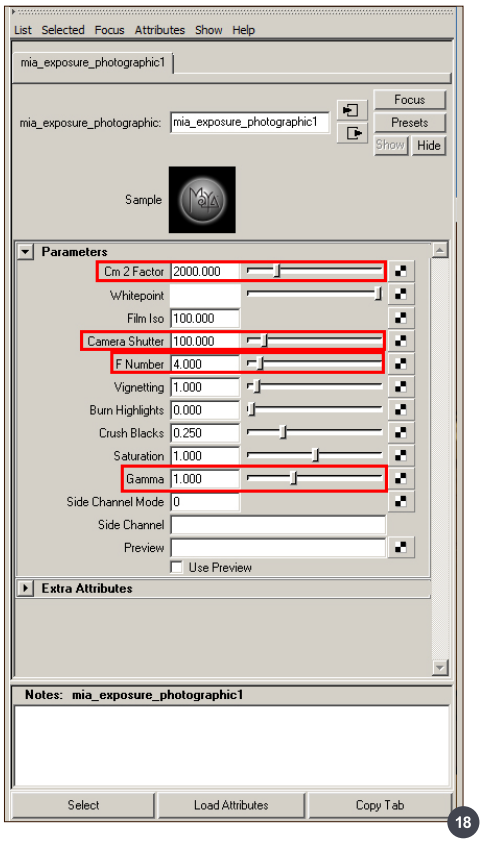
have more control over the final look of the rendering, we need to deal with the exposure control. First of all, make sure that the Gamma value in the Framebuffer section of the Quality tab is set to 0.454 (**Fig.16**).

Now plug a “mia_exposure_photographic” node into the Camera (**Fig.17**).

Set its parameters as shown in **Fig.18**. Set the Cm 2 Factor value to 2000, the Camera Shutter to 100, F Number to 4 and Gamma value to 1 (**Fig.18**).

Now increase the Final Gathering Accuracy value for the final rendering. Make sure to set the final picture size as well. You can see the final color pass in (**Fig.19**).

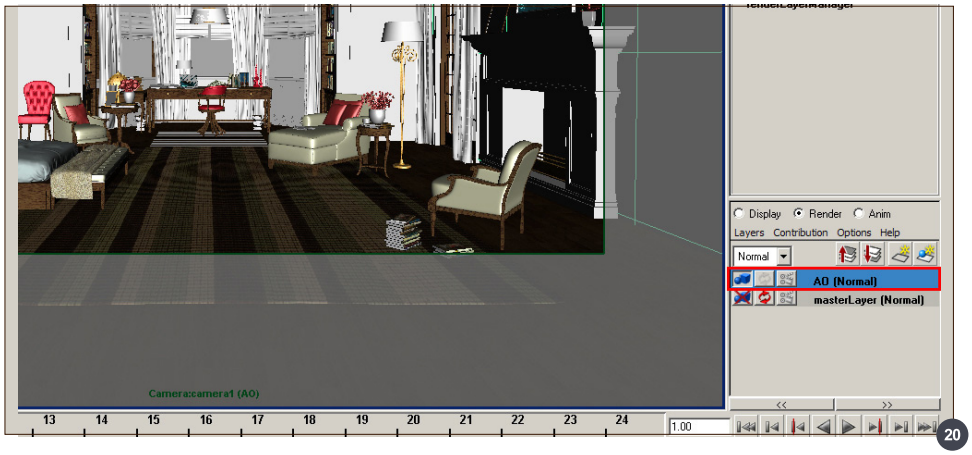
Now we need to create an Ambient Occlusion pass. Create a new Render Layer and assign all the geometry to it (**Fig.20**).



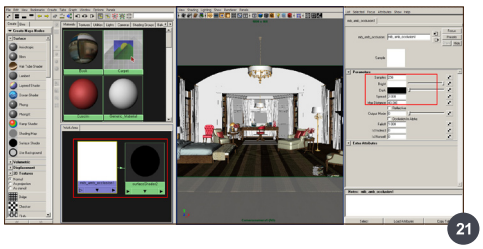

18



19




20



21

In the Hypershade, create a new Surface Shader and connect a “mib_amb_occlusion” node to it. Set the Samples value to 256, the Spread value to 2 and the Max Distance value to 40 (**Fig.21**). Assign this new shader to the Render Layer you created earlier and render the AO pass.

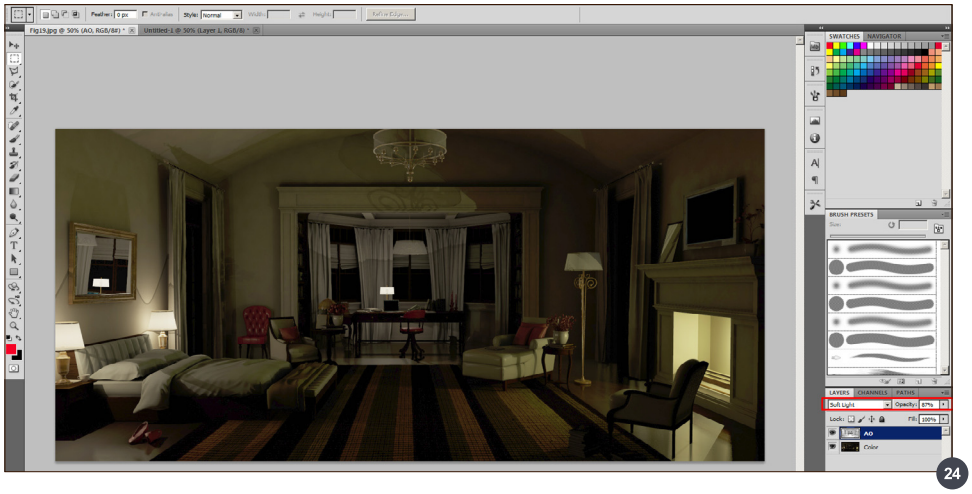

22


23

In **Fig.22** you can see the final AO pass.

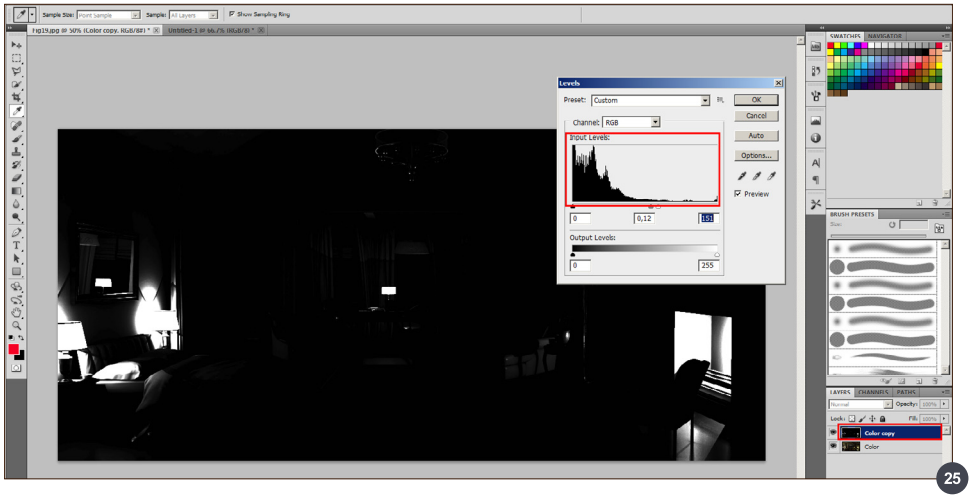
Open both the passes in Photoshop and put the AO pass above the Color one (**Fig.23**).

Set the AO pass' blending mode to Soft Light and the Opacity value to about 87 (**Fig.24**).


24

Flatten the two layers together and duplicate the resulting layer. Desaturate the top layer and use the Levels shown in **Fig.25** to enhance the brighter areas in the image.

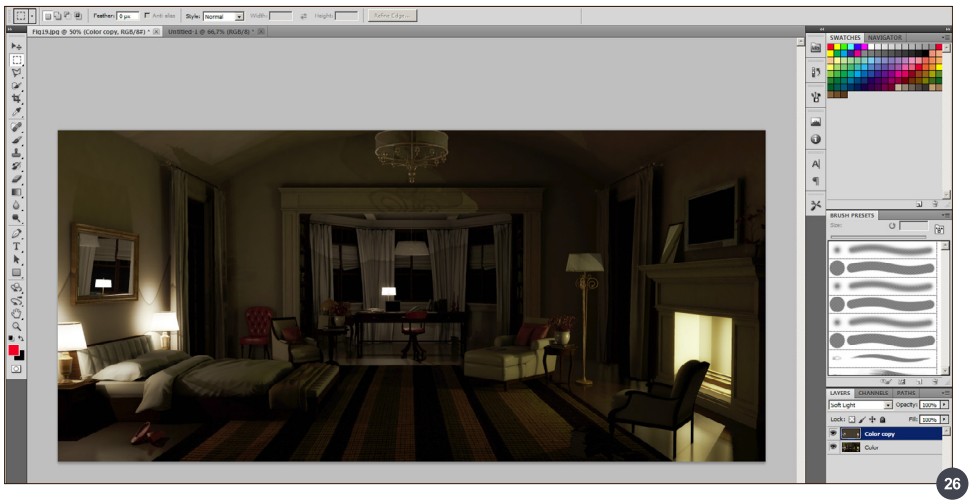
Set the top layer's blending mode to Soft Light and apply a fair amount of Gaussian Blur filter to it (**Fig.26**). Colorize the top layer using the Hue/ Saturation tool to get a warmer overall color.



25

In **Fig.27** you can see the final picture.

Happy rendering and see you next month with the last part of the Interior Lighting tutorial.


26

Scene created by:
VIKTOR FRETYÁN

Textures supplied by:
3DTOTAL TOTAL TEXTURES

Tutorial by:
LUCIANO IURINO

For more from this artist visit:
http://www.pmstudios.it
Or contact them:
iuri@pmstudios.it

DOWNLOAD RESOURCES
- FREE SCENE & TEXTURES





3DTotal presents the new issue of 2DARTIST magazine: a downloadable monthly magazine for concept art, digital & matte painting for only £2.75 (approx $3.78 - €2.93)




visit WWW.2DARTISTMAG.COM to download the free 'lite' issue, the full issue, subscription offers and to purchase back issues.



OUT NOW!

3dtotal.com

Is a resource website for the CG community; amongst our growing number of products for CG artists, we produce two monthly downloadable PDF magazines – *2DArtist* and *3DCreative*. We are based in the West Midlands, in the UK, and our intention with our magazines is to make each issue as full of great articles, images, interviews and tutorials as possible. If you would like more information on 3DTotal or our magazines, or if you have a question for one our team, please use the links below.

## Contact Information

http://www.3dtotal.com
http://www.3dcreativemag.com
http://www.2dartistmag.com

Editor & Content Manager > Simon Morse
simon@3dtotal.com
Lead Designer > Chris Perrins
chrisp@3dtotal.com
Marketing > Claire Hughes
claire@3dtotal.com

## Partners

If you have a CG community website and would like to support *3DCreative* and/or *2DArtist* magazine by showing our banners, please contact Lynette Clee at the email address above

3D HYPE
3DM3.COM
3D Revolution Studio
Ambiguous Arts
ArtTalk.ru
CGD CGDIRECTORY.COM
CGPAD.ORG
ChildPlayStudio
Epilogue Fantasy, Sci-fi, Horror, Anime
Falling Pixel Europe's Leading 3D Resource
www.FridgeMonsters.com
Hiperia 3D
Inspiring 3D Your ticket to imagination
Krazy Bov .com
CGTantra Learn Inspire Grow
VainSoft Gaming
Vanishing Point
CGART.IR گالری تخصصی هنرهای دیجیتال
Mastering Mental Ray
VEEGRAPH.COM comic.cg.postproduction